

STATE OF VERMONT  
AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF FORESTS, PARKS & RECREATION  
DEPARTMENT OF FISH & WILDLIFE

***Brattleboro Management Unit***  
Long Range Management Plan

Including lands of:  
Dutton Pines State Park  
Fort Dummer State Park  
Molly Stark State Park  
Sweet Pond State Park



**Prepared by: Springfield Stewardship Team**

Date: *August 17, 2011*



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***EXECUTIVE SUMMARY***  
**LONG RANGE MANAGEMENT PLAN**  
**BRATTLEBORO MANAGEMENT UNIT**

The Brattleboro Management Unit is comprised of four parcels totaling 540.65 acres. They are: Dutton Pine State Park (13 acres), Fort Dummer State Park (259.55 acres), Molly Stark State Park (168.10 acres), and Sweet Pond State Park (100 acres).

Dutton Pines and Sweet Pond State Parks are day use areas with no overnight facilities. Fort Dummer and Molly Stark State Parks feature campgrounds, recreational areas, and hiking trails. Sweet Pond State Park also features a large pond and wetland.

Some of the more interesting features and constraints include:

*Dutton Pines State Park*

- An easement and restrictions for four water wells and infrastructure owned and operated by Housing Foundation, Inc. to provide water to a nearby mobile home community.
- CCC-era buildings and infrastructure in reasonably good condition.
- A history of being considered ‘surplus property’.

*Fort Dummer State Park*

- A cleared corridor and easement for underground water and sewer servicing the I-91 North Welcome Center.
- An abandoned slate quarry with legally questionable ownership status.
- A rich historical context.
- A rare natural community (Dry Oak Forest), an uncommon type (Sugar Maple-Ostrich Fern-Riverine Floodplain Forest), and 12 species with rare, uncommon, or threatened status.

*Molly Stark State Park*

- A summit that features a viewing tower and communications structures.
- Proximity to the Town of Marlboro’s Hogback Mountain Conservation area with a rapidly expanding recreational use.
- A history of storm, ice, snow, and insect damage in the forest.

*Sweet Pond State Park*

- An outdated and failing residence proposed for decommissioning.
- One of only two waterbodies in Guilford, Vermont.
- A popular local hiking trail.
- An aging dam with a recent rating of “poor condition” by the Dam Safety program.
- Pond was drained in April 2011 per order of DEC Dam Safety.

## Management Highlights

The Long Range Management Plan (LRMP) is designed for a 25-year period. Changing conditions and/or FPR goals in that period could result in amendments or additions to the LRMP.

### *Dutton Pines State Park*

- The Parks Division would prefer to transfer ownership in a way that maintains the parcel for public use but doesn't require management or Parks Division time or funds.
- The infrastructure and use for water wells is expected to continue. A gate will be installed and the road graveled.
- A general thinning of the parcel is proposed to remove unhealthy trees and promote pine and oak seedlings, featured species of the rare natural community here.
- A Preservation Plan will be developed for the CCC facilities to find appropriate local use in place or a suitable location on a different parcel if a use can't be found on site.

### *Fort Dummer State Park*

- A number of rare communities and plants will require careful management and protection.
- Trail maintenance and park management will continue with a focus on developing native vegetation in the lower strata between campsites, hazard tree removal, establishment of RV hookups, and protection and interpretive signage for historic resources.
- Some modest forest management activities will occur in select areas. Challenges include invasive plants, the threat of hemlock woolly adelgid, steep slopes, and poor management access.

### *Molly Stark State Park*

- Primary uses of Molly Stark State Park will continue to be camping and hiking. Minor improvements and routine maintenance will occur as needed.
- The lease for the communications site will expire in 2018.
- It is anticipated that requests for co-use of the mountaintop and viewing tower from Hogback Mountain Conservation Area will be forthcoming and may require adjustments to the LRMP and projects.
- Timber management is planned for approximately 130 acres. Key issues to resolve will be potential conflicts with trails, recreation areas, and access.

### *Sweet Pond State Park*

- Infrastructure problems in need of resolution will be a primary focus in the next five years. These include the home on the property which is in very poor condition and the Sweet Pond Dam which is due for substantial repairs, replacement or removal with no funding source yet identified.
- Trail and parking area maintenance will continue as needed.



- Forest management is planned on approximately 55 acres. Harvests will be designed to improve wildlife habitat, improve growth of higher value trees, and protect recreational and historic resources.

All four parcels of the Brattleboro Management Unit require balancing objectives on small but complicated properties. The Land Use Classification (LUC) system enables managers to allocate use and management by unit, minimizing conflicts between competing objectives. All four parcels share common goals of recreational use and development, protection and enhancement of wildlife habitat and rare natural communities and plants, protection and interpretation of historic resources, maintenance of key infrastructure, and sustainable forest management.

Success in meeting multiple goals will require careful planning and execution as outlined in the LRMP.

**LONG RANGE MANAGEMENT PLAN  
BRATTLEBORO MANAGEMENT UNIT  
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## **I. Introduction**

### **Overview of Lands Management by the Vermont Agency of Natural Resources**

#### ***Purposes of Land Ownership***

On behalf of the State of Vermont, the Agency of Natural Resources manages state-owned land for a variety of purposes, ranging from the protection of important natural resources to public uses of the land in appropriate places.

*Natural resources* include, but are not limited to, the following: biodiversity, wildlife habitat, natural communities, water bodies, wetlands, undeveloped land, scenery, and aesthetic values.

*Public uses* include, but are not limited to, the following: recreation, access to state lands or waters, environment-related businesses, flood control, education, research, and sustainable use of renewable resources such as hunting, fishing, trapping, and forest management.

#### ***Outcome of Long-Range Management Plans***

The Vermont Agency of Natural Resources manages state lands in a sustainable manner by considering all aspects of the ecosystem and all uses of the natural resources. (Agency Strategic Plan 2001-2005)

The agency has a mandate to serve as the principal land steward for properties owned or managed by its three departments – Environmental Conservation; Fish and Wildlife; and Forests, Parks and Recreation.

The development of long-range management plans (LRMP) for agency lands represents a key step in providing responsible stewardship of these valued public assets. Each LRMP identifies areas where different uses are to be allowed and describes how these uses will be managed to ensure protection of natural resources. The following over-arching management standards further both agency and department missions and are applied to the development of long-range management plans for all ANR lands:

**Biological Diversity:** Agency lands are managed to both maintain and enhance the variety and abundance of plants, animals, and other life forms at scales ranging from local to regional.

**Ecosystem Health:** Agency lands are managed to ensure ecosystem functions, health, and sustainability. Threats and stresses are monitored, evaluated, and reported regularly.

**Legal Constraints:** Agency lands are managed in accordance with the purposes for which they were acquired. Many agency lands were purchased with federal funds that require management to be directed for specific purposes. These requirements and other legal restrictions, such as conservation easements, are supported in all planning and management activities.

**Natural Resource Science:** The foundation for management decisions on agency land consists of comprehensive ecological assessments as developed and documented in long-range management plans.

**Wildlife Management:** Wildlife management activities are directed at protecting and enhancing wildlife habitat for species needing to be conserved as well as those of public interest and utilization.

**Recreational Uses and Needs:** Agency lands are managed to create, maintain, and enhance sustainable recreational uses. Permitted or allowed activities are dependent upon site capabilities and public need. Wildlife management areas continue to give priority to wildlife-dependent activities.

**Sustainable Forestry:** Agency lands are managed to ensure forest health and sustainability. Vegetation management and utilization strategies based on natural communities and appropriate guidelines ensure that trees, forests, and forest ecosystems remain healthy.

**Public Involvement:** State lands are a public resource. The public is involved in all aspects of decision-making on state lands, including acquisition, policy development, management planning, and the implementation of policies, plans, and regulations. In developing long-range plans, the agency considers interests outlined in local, regional, and state plans, including town plans, regional plans, watershed plans, and species recovery and management plans, and works to resolve conflicts between plans as may be appropriate or necessary.

**Historical/Cultural and Scenic Values:** Agency lands are managed to be sensitive to historical, cultural, and scenic values. Due to protection under state law and federal regulations, sites of archaeological or historical significance are equal in status to any other legal constraints applicable to the lands.

**Best Management Practices:** Lands under agency management serve as exemplary stewardship models for the public and private sectors in Vermont. Whenever possible, best management practices that are utilized are visible and easy to understand.

**Regional Availability of Resources and Activities:** Because every parcel of agency land cannot accommodate all the uses that the public might want, the agency works to ensure that the following uses are made available on a regional basis: sustainable forest harvest; sustainable recreational activities; wildlife-oriented activities; protection of biodiversity and natural communities; and activities that reflect historical and cultural values.

*August 2001*

## **Mission Statements Which Have Guided the Development of This Plan**

### ***Vermont Agency of Natural Resources***

The mission of the Agency of Natural Resources is “to protect, sustain, and enhance Vermont’s natural resources, for the benefit of this and future generations.” (Agency Strategic Plan, 2001-2005).

Four agency goals address the following:

- To promote the sustainable use of Vermont’s natural resources;
- To protect and improve the health of Vermont’s people and ecosystems;
- To promote sustainable and outdoor recreation; and
- To operate efficiently and effectively to fulfill our mission.

### ***Department Mission Statements***

#### **Vermont Department of Environmental Conservation Mission Statement – 2001-Present**

To preserve, enhance, restore, and conserve Vermont’s natural resources, and protect human health, for the benefit of this and future generations.

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#### **Vermont Department of Fish and Wildlife Mission Statement – 2001-Present**

The mission of the Vermont Fish and Wildlife Department is the conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont. To accomplish this mission, the integrity, diversity, and vitality of their natural systems must be protected.

\*\*\*\*\*

#### **Vermont Department of Forests, Parks and Recreation Mission Statement – 2001-Present**

The mission of the Department of Forests, Parks and Recreation is to practice and encourage high quality stewardship of Vermont’s environment by monitoring and maintaining the health, integrity, and diversity of important species, natural communities and ecological processes; managing forests for sustainable use; providing and promoting opportunities for compatible outdoor recreation; and furnishing related information, education, and services.

## II. Parcel Description

### A. General Information and Base Maps

The Brattleboro Management Unit (BMU) is comprised of four state parks and associated lands in Windham County in southeastern Vermont. They are:

Parcel	Biophysical Region	Acreage	Town(s)
Dutton Pines State Park	Southern Vermont Piedmont	13.00	Dummerston
Fort Dummer State Park	Southern Vermont Piedmont	0.55	Brattleboro Guilford Vernon
		198.00	
		61.00	
	<b>Total</b>	<b>259.55</b>	
Molly Park State Park	Southern Green Mountains	168.10	Wilmington
Sweet Pond State Park	Southern Vermont Piedmont	100.00	Guilford

Important biophysical region characteristics related to use and management for these parcels:

#### *Southern Vermont Piedmont*

- warm temperatures and moderately abundant precipitation
- bedrock dominated by limey schists
- deep valley sands and gravels
- topography of moderate hills
- intersection of a number of broad forest types from both central and northern New England

#### *Southern Green Mountains*

- cooler temperatures and abundant precipitation
- bedrock dominated by acidic, non calcareous rock
- lack of sands and gravels
- topography is generally moderate peaks and high plateaus
- dominance of northern hardwood forest types

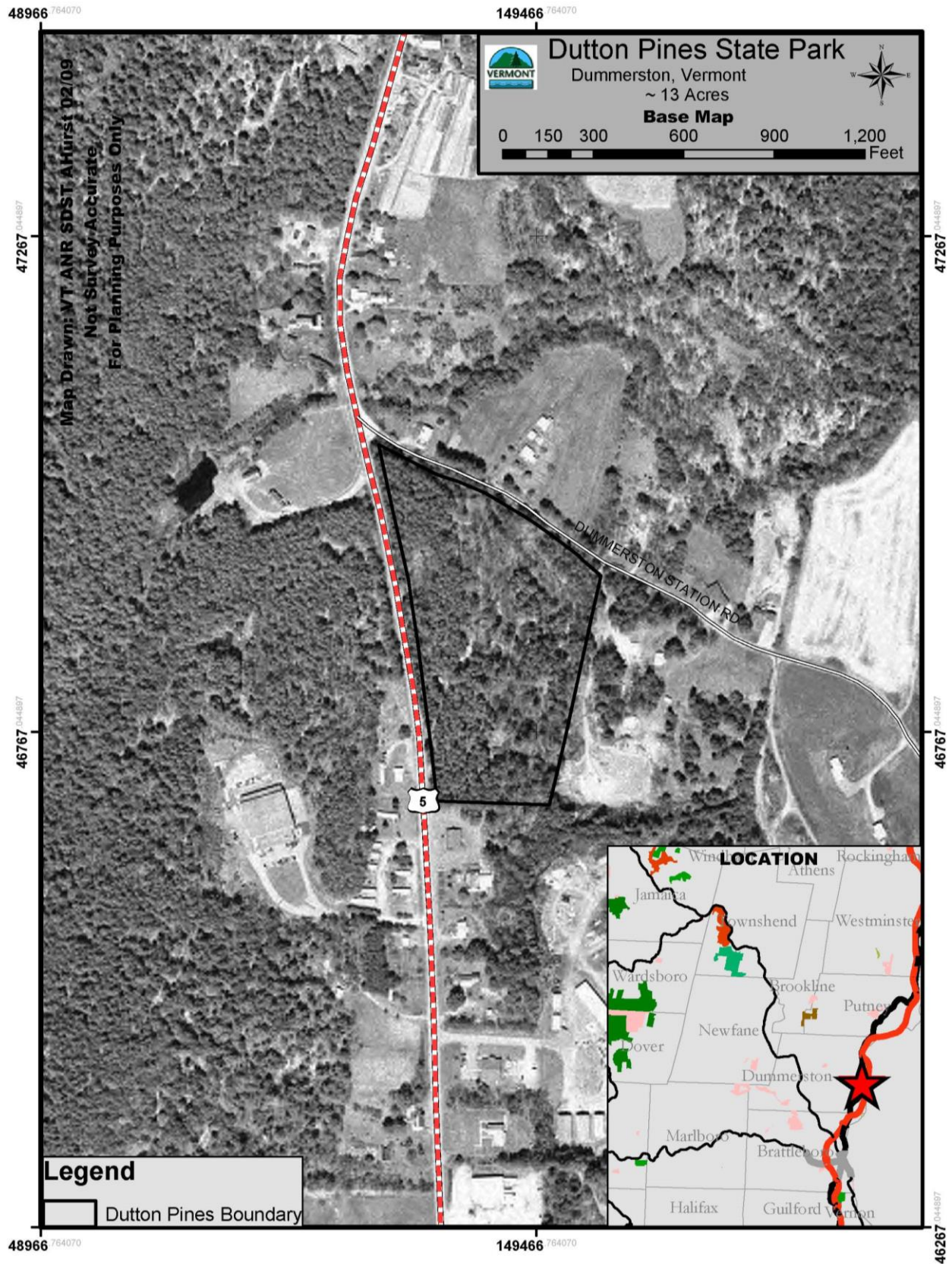
### B. Acquisition History and Legal Constraints

#### **Dutton Pines State Park**

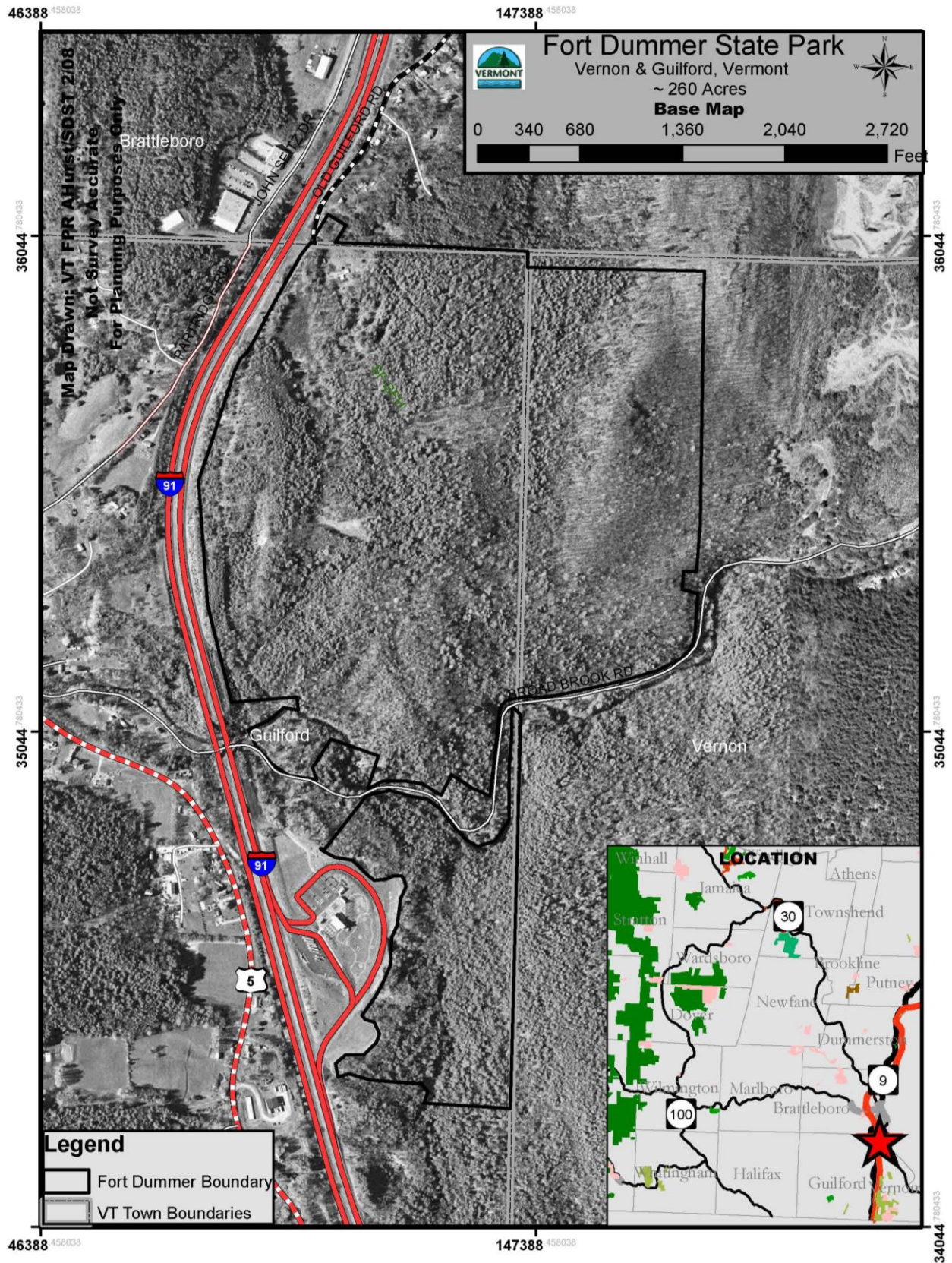
Acquisition History: Purchased 1937 from Edith Dutton to be developed as a park in memory of her father, Myron Dutton.

Legal Constraints: Housing Foundation, Inc. has rights to four water wells, buffers, infrastructure, and access to the sites. Management activities should be planned and implemented to protect Housing Foundation rights.







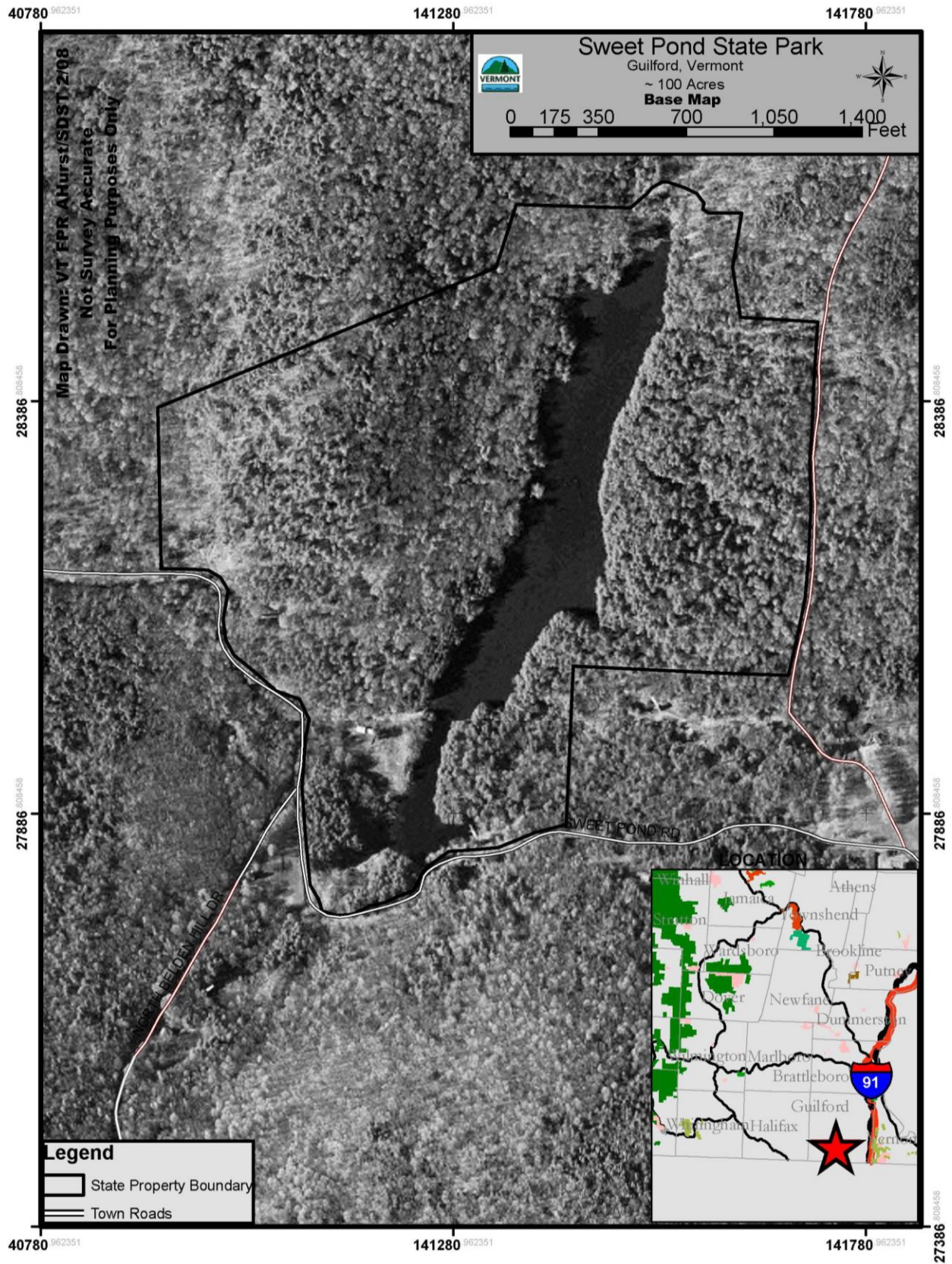


Brattleboro Management Unit Long Range Management Plan – Parcel Description









Brattleboro Management Unit Long Range Management Plan – Parcel Description

### **Fort Dummer State Park**

Acquisition History: Initial lands conveyed to Department of Forests, Parks and Recreation by Executive Order in 1962. Two additional parcels adjoining the original were purchased in 1964. A portion of land across Broad Brook was deeded to the Agency of Natural Resources by the Agency of Transportation in 2002.

Legal Constraints: A number of rights-of-way and water rights from previous owners are now moot as the Department of Forests, Parks and Recreation owns all the parcels of concern.

A major cleared corridor was constructed for an underground sewer pipe through park lands from the I-91 northbound Welcome Center to Brattleboro.

Because of Land & Water Conservation Fund development projects at the park, activities and land uses must be consistent with the objectives of providing outdoor recreational opportunities along with other benefits including clean water, wildlife habitat, scenic vistas, and protecting archeological and historical sites.

### **Molly Stark State Park**

Acquisition History: In 1940, 100 acres were donated to the Vermont Forest Service by Brattleboro and Wilmington and 58 acres were sold to the State by Olga Haslund.

In 1990 an additional 10 acres (Haynes Lot) was acquired at the park entrance.

Legal Constraints: National Grid holds a lease for a 900 square foot plot at the summit of Mt. Olga and a 20 foot wide utility right-of-way for a communications tower, structures, and power lines. This lease expires March 27, 2018.

Because of Land & Water Conservation Fund development projects at the park, activities and land uses must be consistent with the objectives of providing outdoor recreational opportunities along with other benefits including clean water, wildlife habitat, scenic vistas, and protecting archeological and historical sites.

### **Sweet Pond State Park**

Acquisition History: Purchased in 1974 from Mildred Blauvelt by the Connecticut River Watershed Council then transferred to the State of Vermont. LWCF funds were used for acquisition by the State.

Legal Constraints: Under LWCF management, activities and land uses must be consistent with the objectives of providing outdoor recreational opportunities along with other benefits including clean water, wildlife habitat, scenic vistas, and protecting archeological and historical sites.

C. Purpose for Ownership

All four parcels were originally purchased or acquired for recreational use. Sweet Pond was more specifically purchased to provide water-based recreation in an area with a limited number of waterbodies.

**Dutton Pines State Park** – Before the construction of I-91, Dutton Pines State Park served as a well-used rest area, picnic spot, and walking break for locals and tourists traveling along Route 5. It opened in 1940 and closed in 1983. Currently the parcel has limited purpose in the context of state ownership.

**Fort Dummer State Park** – Fort Dummer was initially acquired by the State of Vermont as a condition required by the Town of Guilford for completion of I-91. Interstate 91 created a 156-acre portion of Guilford land with no access from Guilford roads for maintenance or school busing. The campground was constructed in two stages in the 1960s and 1970s to provide overnight camping and day use. Since then, its primary purpose has been overnight camping.

**Molly Stark State Park** – Originally acquired for its recreational opportunities on the side slopes and summit of Mt. Olga, the campground was opened in 1960 to offer camping and day use along Route 9, then and now a popular tourist route.

**Sweet Pond State Park** – The dam at Sweet Pond existed before State acquisition. The parcel was originally purchased to provide water-based recreation. Over time, the parcel has become primarily an informal day use area for hiking. Sweet Pond itself tends to be shallow and silted, functioning more as a wetland habitat than a recreation area.

D. Summary of Land Use/Historical Perspective

**Dutton Pines State Park** – This parcel was part of the Dutton Farm in the late 1800s. It was a site of tree planting by the family and was maintained by the Duttons for public use before state ownership. A day use picnic area was built by the CCC and a few structures still exist. Due to the dry nature of the ground here, they are in surprisingly good shape. It was staffed by a ranger until the late 1970s, but a serious sustained drop in use due after I-91 was opened resulted in it being decommissioned as an active park in 1983.

**Fort Dummer State Park** – While there are not many visible historic resources at Fort Dummer State Park, the parcel has a deep historical context which includes the following:

- Sikes and Boydon Farms 1800s. Buildings demolished during I-91 construction except the “Kinsman Farmhouse” located in the park but not used.
- Several potential sawmill sites on Broad Brook.
- A slate quarry was opened from 1810 to 1875. The abandoned quarry, water filled, is in the middle of the park.
- A historic military route known as the “Scout Path” passed near and through park lands. Undisturbed portions may exist.
- The park overlooks the site of Fort Dummer, and historians speculate that military lookouts might have been constructed on the hilltop above the Fort.

**Molly Stark State Park** – A farmstead and farmland in the 1800s, the farm buildings were replaced in the 1950s by the construction of the state park which opened in 1960. The CCC constructed a small roadside picnic area before state ownership. Historical remnants of Hogback Ski Area are found on the east side of Mt. Olga. Due to its topographical prominence, the summit of Mt. Olga has been used for fire observation and electronic communications. The existing fire tower, now used for public viewing, was removed from Bald Mountain at Townshend State Forest and rebuilt on Olga in 1958. Two forest fire watchman’s cabins were removed in 2005 due to their decrepit and dangerous conditions. The original electronic communications tower was replaced with a modern tower in 1994. The campground opened in 1960.

**Sweet Pond State Park** – Maps indicate Sweet Pond was the site of a ca. 1880 water-powered mill site and bridge/culvert remnants remain of a historic road that linked Guilford Center and Leyden/Greenfield Massachusetts in the 1700s.

The historic Franklin Cemetery is found within the park borders as well as remnants of the 18<sup>th</sup>-19<sup>th</sup> century farmstead that existed where the Sweet House is now located.

#### E. Summary of Ecological and Wildlife Habitat Assessment

**Dutton Pines State Park** – Dutton Pines State Park is too small to serve any significant habitat function. However, it is occupied by a rare natural community: White Pine-Red Oak-Black Oak Forest. While its ecological condition is not ideal, it is important due to the rarity of the community type. Invasive shrubs and tree seedlings are present but in low numbers.

**Fort Dummer State Park** – Fort Dummer State Park stands out as a parcel with exceptional ecological features and wildlife habitat. The parcel is host to a rare natural community (Dry Oak Forest) and an uncommon type (Sugar Maple-Ostrich Fern Riverine Flood Plain Forest) and 12 plant species in the very rare, rare, or uncommon state rank with one threatened species (Flowering Dogwood). Of the four parcels, it also ranks highest in the presence of invasive plants.

Important habitat features include several wetland types, a deer wintering area, and a large area of oak mast production for wildlife.



**Molly Stark State Park** – Ecological and habitat features here are average for the southern Green Mountains. Notable features are a 78-acre uncommon natural community type (Lowland Spruce-Fir), a small area of oak mast, and an old apple orchard. The entire parcel falls within an area mapped by Fish & Wildlife as primary bear habitat. At present, invasive plants are absent.

**Sweet Pond State Park** – The most interesting ecological features of Sweet Pond are the five wetland types associated with the pond. Though most are classified as common to Vermont, they create excellent wildlife habitat and offer good wildlife viewing for recreational users of the trail. With a few areas of mast trees (oak and hickory) and a large area of softwood cover, the forest portion is good habitat for a number of woodland species that prefer mature forest and/or softwood cover. Early successional habitat is limited. Invasive plants are present in low numbers.

Aquatic habitats on most of the BMU parcels are limited to small first and second order streams. Those streams with year-round flows are expected to contain brook trout, blacknose dace, and/or slimy sculpin.

Sweet Pond is the exception, comprised of an 18-acre impoundment, feeder streams and the outflow, Keets Brook. Sampling in the pond in 1977 and 1986 captured largemouth bass and yellow perch. Electrofishing done by the Fish & Wildlife Department in Keets Brook in 1990 and 1996 revealed brook trout, blacknose dace, largemouth bass, and American eel. The presence of eels is unexpected and significant as they are normally found in the Connecticut River and its larger tributaries. The bass found in Keets Brook in 1996 are a concern due to their ability to feed on brook trout.

F. Summary of Timber Management Assessment

**Dutton Pines State Park** – Due to structures, state roads, electrical wires, and historical buildings, the parcel has received limited management. A small but well stocked stand of white pine and other species exists here. There is evidence of decay in pine due to older age and higher density stocking levels. Regeneration is abundant consisting of sapling sized hardwood and white pine. The ground, well drained and flat, is excellent for forestry operations.

**Fort Dummer State Park** – With a more recent agricultural history than the other BMU parcels, there are areas of poletimber hardwood and softwood trees mixed with larger diameter stands. Soil productivity ranges from poor (droughty) to high. Tree species composition is mixed. Common species include red oak, black oak, Eastern hemlock, black birch, and white pine. Access is difficult for portions due to steep slopes and drainages. Non-native invasive plants threaten to occupy the understory and are prevalent in both managed and unmanaged sections. Due to poor access, steep ground, exotic shrubs, rare communities and plants, timber management potential is limited.

**Molly Stark State Park** – Unlike the other parcels of BMU, forest stands here are upper elevation types on stony wet ground. Common tree species include sugar maple, red

maple, yellow birch, and red spruce. Most trees are in the sawtimber size class. The area has historically suffered from storm damage and insect defoliations – the most recent storm damage from an ice storm in 2008 resulted in trees that are often low quality and low vigor. Most stands are best suited to replacement through regeneration harvests. Constraints include poor access to stands, park infrastructure, wet soils, poor regeneration, a hiking trail, and the proximity of Route 9 – a major tourist route.

**Sweet Pond State Park** – Forest cover at Sweet Pond State Park is comprised of a mix of coniferous and deciduous species. The most dominant species are hemlock, white pine, red oak, and sugar maple. Overall, timber quality is very good with high potential to grow timber crops. Regeneration is generally limited or of poor quality. Most of the parcel is accessible and operable.

The parcel is well suited to timber management, wildlife habitat improvement, and dispersed recreation.

Timber management could conflict with hiking and shoreline aesthetics if not carefully executed. Aesthetics could be compromised at the park entrance due to the unstable nature of the red pine plantation with or without management.

#### G. Summary of Recreational Assessment

**Dutton Pines State Park** – This is a day use area in a residential area. The primary recreational use is local residents walking the old roads and trails and perhaps travelers taking a break off Route 5. Three CCC structures remain. An easement for four wells and associated structures as well as the small parcel size and lack of recreational attributes limits potential for recreational use.

**Fort Dummer State Park** – The park is comprised of a 61-site campground, picnic area, and trails. Use has been historically low due to the difficulty in finding the park. Park redevelopment and realignment aims to add electrical and water hookups for recreational vehicles on some campsites to meet demand and increase occupancy. During the off-season, hiking and walking are the primary recreational uses.

**Molly Stark State Park** – The park is comprised of 34 sites, picnic pavilion, two hiking trails, and an observation tower for viewing at the top of Mt. Olga. Its proximity to Route 9, a major tourist route, makes it a popular campground for travelers. Its proximity to the newly-created Hogback Mountain Conservation Area promises to create opportunities for the park and for the community of Marlboro to work together to promote outdoor recreation in this area. It is anticipated that opportunities for cooperative ventures in regards to recreation/management will arise during the life of this LRMP.

**Sweet Pond State Park** – A day use area in a rural landscape, Sweet Pond State Park is an area used for day hikes, wildlife viewing, and hunting. It contains one of Guilford's two waterbodies, Sweet Pond, an 18-acre pond with an undeveloped shoreline. No motorized use of the pond is permitted (Vermont Water Resources Board rule) and given

the condition of the pond, not warranted. Access to the water is poor, and it serves primarily as wildlife and fishery habitat though some use does occur by the public.

#### H. Relationship to Town, Regional, and other Pertinent Planning Efforts

**Dutton Pines State Park and Fort Dummer State Park** – Both parcels are located in areas where local zoning and planning places limited emphasis on conservation. Local and regional planning supports a number of outcomes at Dutton Pines State Park including use as a day use park, natural area or affordable housing. At Fort Dummer State Park, town plans are more supportive of continued use as a park and managed natural area.

**Molly Stark State Park** – Town and regional plans are supportive of the goals of BMU with an emphasis at the town level on aesthetics from Route 9. In addition, recent local efforts to conserve the 600-acre Hogback Mountain property to the east dovetails well with Molly Stark geographically and conceptually.

**Sweet Pond State Park** – Of the four BMU parcels, Sweet Pond State Park stands out as one where local and regional planning is most supportive of current and proposed uses of the park.

#### I. Relationship to the Region

The long-range management plan for all four units of the Brattleboro Management Unit is consistent with the rural lands, natural resources, and community resources policies within the current Regional Plan developed by the Regional Planning Commission.

##### ***Dutton Pines State Park*** – Dummerston

Goals and policies within the Dummerston Town Plan support both the continuation of the status quo at Dutton Pines, its conversion to a town recreational parcel or its use for affordable housing. While an overriding goal is to “promote a land use pattern...that maintains a rural character”, the plan speaks to providing housing for all income levels and focusing development on already developed areas.

Important points in the Dummerston Town Plan as related to Dutton Pines State Park include:

- support for forestry and the forestry economy
- protection of public investments
- limits to development in “wellhead protection” areas
- improvement of existing recreational areas, including Dutton Pines State Park

### ***Fort Dummer State Park – Vernon***

Objectives for Fort Dummer State Park are compatible with the primary objectives in the Vernon Town Plan that speak to:

- maintenance of a rural character, protection of public investments
- continued use of woodlands for forestry, protection of sensitive areas (such as the banks above Broad Brook)
- continued diverse economic opportunities for forest management.

### ***Fort Dummer State Park and Sweet Pond State Park – Guilford***

Guilford's Town Plan and management goals for Fort Dummer State Park and Sweet Pond State Park are compatible. Important connections between town and ANR goals for these parcels include:

- maintenance of historic settlement patterns
- preservation of large tracts of undeveloped woodland
- protection of significant historic and natural resources
- preservation of important forestland and wetlands and the promotion of forestry and recreational opportunities on woodlands
- promotion of an abundance of wildlife associated with a diverse and productive forest

Notable in the town plan and an important consideration is that the town's largest waterbodies, Sweet Pond and Weatherhead Hollow Pond, are owned and managed by the Agency of Natural Resources. Both parcels are located in conservation zones in the proposed land use map of the town plan.

### ***Molly Stark State Park – Wilmington***

Management goals of Molly Stark State Park are compatible with the Wilmington Town Plan; however an important consideration is the focus on scenic resources in the town, particularly on rural hillsides. This relates to the importance of tourism in this region. Aesthetics from a distance and along Route 9 will be important considerations in conducting forest management and park improvements.

Broad goals of the Wilmington Town Plan include:

- maintaining a compact village and rural countryside
- maintenance of aesthetics of forested hillsides and mountains
- "protection of unique natural areas from uses that would significantly alter their scenic, educational, or scientific values"
- protection of aquatic habitat from disturbance associated with poor forestry practices
- promotion of economic opportunity in forestry
- that timber harvesting follow a prepared plan that aims for sustainability

## **Regional Conservation Context**

In 2007 FPR participated with the Windham Regional Commission (WRC) in a mapping project designed to demonstrate the context of public and private lands of town plans and zoning.

These maps demonstrate that Dutton Pines State Park and Fort Dummer State Park are located in comparatively developed areas with little to no local conservation priority (see page 117).

Sweet Pond State Park stands out as a parcel anchoring a large area of undeveloped, unconserved land in an area where local plans and zoning prioritize conservation of undeveloped land (see page 119).

While Molly Stark State Park is adjacent to a forested area that has recently had tremendous public attention and local efforts at conservation (Hogback Mountain), this public interest is not specifically reflected in town plans (see page 118).

## **Future Acquisition/Disposition**

Dutton Pines State Park has been identified by FPR staff as surplus property several times in the past. The parcel serves little purpose within the State Park system due to a lack of facilities or attributes to attract the public. The Town of Dummerston approached FPR in 2008 with a proposal to acquire the parcel for mixed use but withdrew the proposal due to the constraints on the parcel associated with Housing Foundation, Inc.'s water wells and infrastructure.

Input received from the Town of Dummerston in April of 2011 indicates the Town is very interested in the park remaining in public ownership for recreation and historic preservation (Appendix Q).

The residence at Sweet Pond State Park is proposed by the Parks Division for removal for several reasons. It is in poor structural condition and continues to decline; it serves no purpose in the management and operation of the park, and it interferes with public access to part of the property. A residence unrelated to the park operation is inconsistent with how state parks are designed.

### **III. Public Input**

A public input meeting was held in Brattleboro, Vermont for the Brattleboro Management Unit (BMU) on March 24, 2011. An extensive mailing list was used to notify the public that included user groups, town officials, neighbors, regional planners, and people known to have a local interest in the BMU. Approximately 35 people attended the meeting.

The subject of the planned drawdown of Sweet Pond and uncertain future of the dam dominated the public comment and question portion, the written comments received, and the local news coverage of the meetings and subsequent public reaction.

Resulting adjustments to the LRMP and/or the direction of work by local staff include:

- The importance of Sweet Pond locally and regionally was evident. An active and well organized group of private citizens was created with a goal of getting the dam replaced. The District Stewardship Team (DST) began to work actively with the group in the late spring. The DST supported the idea of replacing the dam as a concept due to the importance of the pond to the region and the lack of appreciable negative impact to Keets Brook, already compromised by other impoundments and roads. Parks contracted a feasibility study of options in June 2011 which will guide decisionmaking on the site.
- There were both positive and negative views of expanding water and electrical hookups at Fort Dummer State Park. The parks Division plans to move forward (see page 50 for more detail).
- The Town of Dummerston strongly supports the continued management of Dutton Pines State Park for local recreation (page 205) and the preservation of historic CCC buildings and infrastructures. The draft was amended to reflect the desire to maintain the parcel as a state or town park and to maintain the historical features in place.
- There was support for the forest and habitat management proposed as well as the continued improvement and slight expansion of recreational opportunities.

## IV. Management Strategies and Actions

Four categories of management have been identified for the lands administered by the Vermont Agency of Natural Resources (ANR). These categories indicate where different levels of use or types of management will be emphasized on the land. In this section of the plan, the recommended levels of use or types of management will be shown for all the land area in each parcel. This section also describes generally how the land will be managed so that the activities occurring on the land are compatible with the category assigned. The four categories are: (1) Highly Sensitive Management; (2) Special Management; (3) General Management; and (4) Intensive Management.

As part of the planning process, the lands, resources, and facilities held by the ANR are evaluated and assigned to the appropriate land management category. Assignment of management categories for the Brattleboro Management Unit is based on a thorough understanding of the resources identified and the application of the over-arching lands management standards presented in the introduction section of the plan. The resources include natural communities, plants and wildlife as well as recreation, historic, timber and water resources. The 11 lands management standards or principles include maintaining biodiversity and involving the public, as well as implementing legal constraints, such as easements, wherever they are applicable.

### Definitions of Land Management Categories (Classification)

- 1) **Highly Sensitive Management** – An area with uncommon or outstanding biological (including wildlife habitat), ecological, geological, scenic, cultural, or historic significance where protection of these resources is the primary consideration for management. Human activities and uses should not compromise the exceptional feature(s) identified.
- 2) **Special Management** – An area with unique or special resources where protection and/or enhancement of those resources is an important consideration for management. These areas do not require the same level of protection given to highly sensitive areas and may be intensively managed for timber and wildlife habitat. Roads and recreational activities should not compromise the unique or special resource(s) identified.
- 3) **General Management** – An area where the dominant uses are vegetative management for timber and wildlife habitat, concentrated trail networks, dispersed recreation, or other general land uses. In these areas, a primary management consideration is minimizing conflict between the activities, as well as with lands categorized as more sensitive where they are adjacent to a general management area. In addition, more sensitive resources that occur within these areas may require special attention.
- 4) **Intensive Management** – An area that is easily accessible and characterized by a high level of human activity and high intensity development on or adjacent to state land. Aesthetics and safety are the primary management considerations in these areas. However, more sensitive resources that occur within these areas may require special attention.



Three of the parks within the Brattleboro Management Unit (excluding Dutton Pines State Park) along with Townshend State Park, serve as the “Southeastern Vermont Gateway” parks. These parks, for the most part, provide unique experiences that will be preserved, enhanced, and promoted.

**Dutton Pines State Park** – Dutton Pines has not provided recreational value of statewide significance since the 1960s. However, it does have value to the local community. The property is best suited for being turned over to the municipality or other suitable organization if there is support for local ownership.

- Determine best course of action cooperatively with Town of Dummerston
- Work with Town of Dummerston and Division of Historic Preservation to protect historic features of Dutton Pines State Park in place if possible

### **Fort Dummer State Park**

- Focus efforts and facility improvements on camping
  - Reconfigure northern loop to attract and retain RV business and meet current and increasing demand for this service
    - Add electrical and water hookups on up to 25 sites
    - Open up the forest cover to provide more grass on sites and a more “park-like” appeal
  - Keep traditional camping in southern loop
  - Renovate both restroom facilities
  - Construct new contact station
  - Renovate staff housing and relocate maintenance area
  - Interpret historic resources-the slate quarry and revolutionary history
  - Construct natural playground
  - Provide access to Broad Brook from the campground for water based recreation
- Protect rare, threatened, and endangered plants and plant sites as part of all management and infrastructure activities
- Redirect day use activity to Brattleboro town parks and functions/events to Molly Stark State Park due to lack of facilities at Fort Dummer State Park
- Promote the experience available at Fort Dummer

### **Molly Stark State Park**

- Keep and enhance current emphasis on camping, hiking, and functions
- Improve camping sites and facilities
- Improve and promote the function area
  - Provide more flat open space around shelter
  - Provide more parking space
- Maintain trail system and fire tower
- Partner with town on a regional trail system on the newly-established Hogback Mountain Conservation Area at the former Hogback Mountain site and the Wilmington Trail Committee as well as other compatible management and recreational ventures
- Promote the experience available at Molly Stark

**Sweet Pond State Park**

- Retain emphasis on undeveloped recreation
- Maintain trail
- Follow previous LRMP recommendations to remove house and garage as they do not support the undeveloped recreation at the property in light of extensive amount of rehabilitation necessary
- Investigate and evaluate options for Sweet Pond Dam and restoration of Sweet Pond

**Land Management Goals and Objectives:**

- Protect and enhance wildlife habitat through management of all seral stages, creation of early successional growth, improvement of deer wintering areas, and protection of unique habitat, where appropriate.
- Provide sustainable, periodic timber harvesting in appropriate areas to promote wildlife habitat and forest productivity.
- Demonstrate exemplary management practices so that practices applied here may find broader application on private lands.
- Protect and improve public access for dispersed recreation and activities associated with park operations.
- Control spread of invasive non-native plants and insects.
- Minimize conflicts between traditional recreation uses such as hunting and fishing and expansion of other forms of recreation.

## ***Dutton Pines State Park***

### **A. Special Management (13 acres)**

2.7 Wellhead Protection Area (3 acres): Four wells for an adjacent trailer park, a 125' buffer (for each well), two small utility buildings, and water and power lines are protected by easement for use of "The Housing Foundation Incorporated" (HFI). Infrastructure here includes well casings, pump houses, storage tank, electrical source, and road access to the pump houses.

#### *Management Issues and Strategies:*

- A previously closed road is opened and plowed and offers an opportunity for some vandalism. A gate was to have been installed by The Housing Foundation Incorporated that has yet to be installed. Structures will pose some difficulty during timber harvest activities and will require highly skilled contractors to execute. Management activities will focus on protection of the infrastructure, adherence to easement rights of HFI, and vegetative management of surrounding trees to maximize individual tree health and stability, and minimize threats to visitors and structures from hazard trees.

#### *Implementation:*

- Adhere to easement designated buffers.
- Remove hazard trees that threaten infrastructure while conducting normal forestry operations. Thin adjacent stands to promote health and stability of surrounding trees.
- Install gate on access road using HFI funds, preferably a design in keeping with the history of the park.
- Any soil disturbance activities on slopes  $\leq 8\%$  will require additional archeological review.

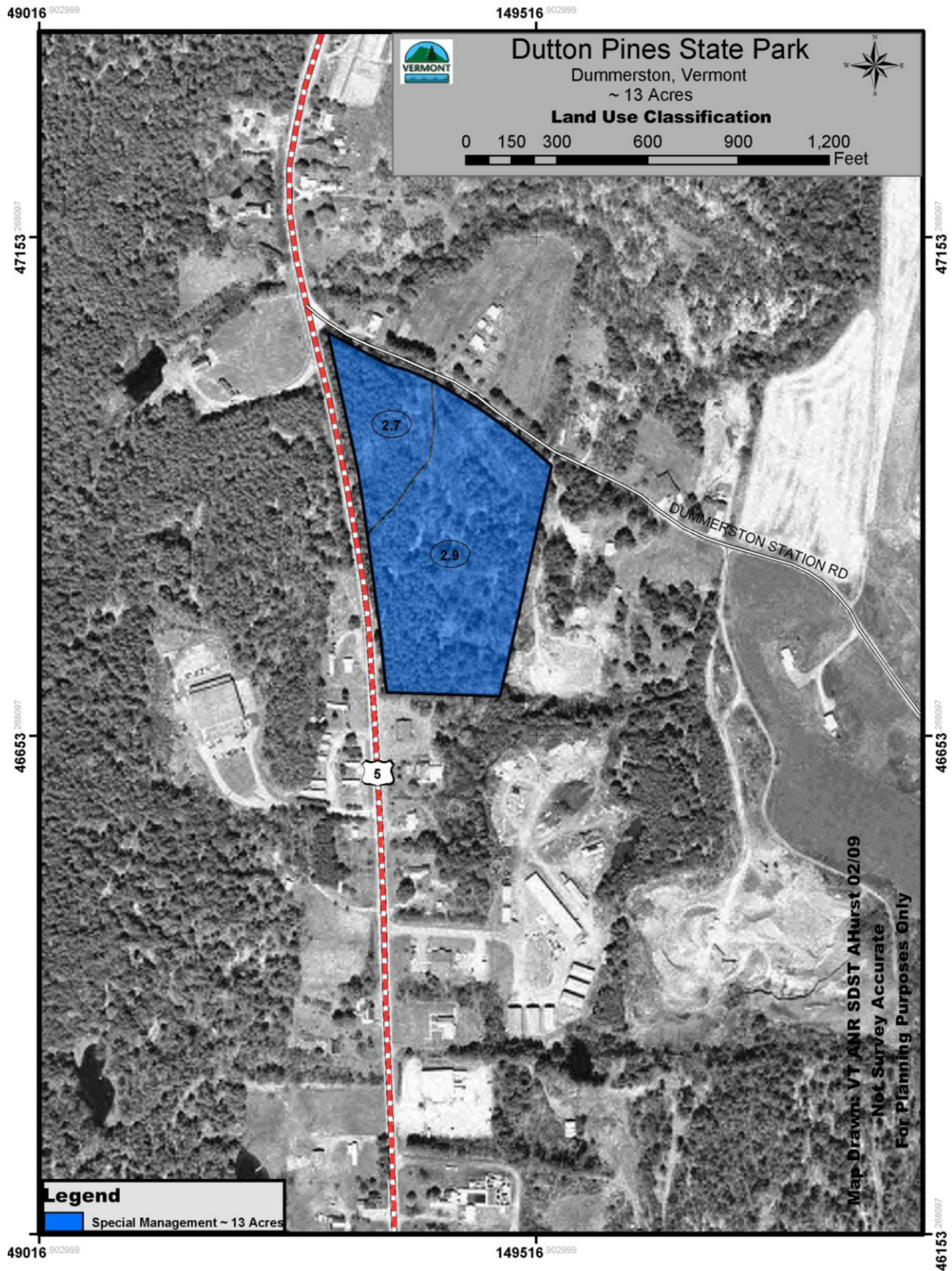
2.9 Special Recreation Area (10 acres): The remainder of the parcel is classed as a special recreation area due to the myriad of trails in that small area and the frequency of local use. In addition, the presence of CCC structures and a relatively rich history warrants careful management.

#### *Management Issues and Strategies:*

- The rare natural community, White Pine-Red Oak-Black Oak, is in danger of being replaced over time by black birch and eastern hemlock. Vegetative management will incorporate recruitment of pine and oak species in the seedling/sapling layer.
- Shrinking stem to crown ratios are creating low vigor in many trees. A number of trees in the plantations exhibit signs of rot that make them unsafe to recreational users. Thinnings will be designed to develop more vigorous and wind resistant trees in the main canopy.
- CCC structures here are likely to fail over time due to lack of use and lack of resources to maintain unused structures. These could also pose a safety hazard as they deteriorate.

*Implementation:*

- Develop a Preservation Plan for the CCC structures that outlines a process for finding a use for them on site with a partner organization or moving them to another location where they will be ensured sufficient use and maintenance.
- Forestry thinning to remove hazard trees, improve tree spacing, and improve vigor of residual trees by providing room for tree crowns to expand.
- Conduct brushsaw thinning of the understory to promote oak and pine – important components of the rare natural community here. Focus control efforts on invasive trees and shrubs.
- Any soil disturbance activities on slopes  $\leq 8\%$  will require additional archeological review.
- Work with the Town of Dummerston to develop a program of shared management or a possible transfer to the Town of Dummerston that protects recreational, historic, ecological, and long-term forest management.



## ***Fort Dummer State Park***

### **A. Highly Sensitive Management (56 Acres)**

1.1a Dry Oak Forest (40 acres): Two areas at Fort Dummer State Park support an uncommon natural community, Dry Oak Forest. Its unique and sensitive ecology and the Department's mission to conserve biodiversity support its protection. Tree species relatively uncommon in Vermont including black oak, white oak, yellow oak, and flowering dogwood are found here as are several rare herbaceous plants. The sites are droughty with generally low fertility. An important hiking trail (Sunrise) passes through this unit. The area has a very limited history of any other use.

#### *Management Issues and Strategies:*

- This type will be maintained to ensure the continued production of mast and the stability of the dry oak/hickory natural community. The risk of increasing the invasive plant component, the vulnerability of the area to gypsy moth mortality, and/or potential degradation of the quality of the community should be considered before any management action is taken.
- Uses compatible with a designation of Highly Sensitive Management include hunting, bird watching, light hiking, and nature study. Other than removal of dead trees adjacent to the hiking trail, no tree harvest is planned in the larger unit. Hiking trail re-routing or expansion will require review by and assistance of an ecologist to be certain the natural community and/or rare species are not negatively impacted.

#### *Implementation:*

- Ongoing trail maintenance.
- Signage on site to describe this rare Natural Community.
- No tree harvesting in general. Exceptions may be made in cases of insect or disease problems that threaten the tree composition of the area.

1.1b Red Maple-Black Ash, Seepage Swamp (6 acres): A long sinuous community in a streambed is located on the northeast corner of the parcel – a common but interesting swamp type. It is surrounded by a 'general management' area, and a hiking trail passes along the west side and over the north end near the boundary.

#### *Management Issues and Strategies:*

- The current level of trail use and maintenance does not negatively impact the site. Trail maintenance should not impact the water regime here or damage the several rare plant species located near and in the swamp. Crossing the unit with equipment is not recommended due to the possibility of rutting or other types of ground disturbance.

#### *Implementation:*

- Minimize the need to cross the seep with logging equipment and recreational trails.
- A limited disturbance buffer of 50' will be followed. Maintain a forested canopy between the vernal pool and the seep.
- Further evaluation for the presence of smooth winterberry holly, a very rare shrub, should be conducted.

1.1c Riparian Forest (10 acres): A 10-acre riparian forest along Broad Brook and a feeder stream to Broad Brook from the south are highly sensitive areas. A small parking area and trail is used to access a swimming hole on Broad Brook by the public. This use predates ownership by FPR.

*Management Issues and Strategies:*

- These forests occupy steep and/or unstable banks and saturated areas along the stream. These sites would be prone to slumping and/or erosion if even moderately disturbed. Hiking trail use may be compatible if carefully designed and managed.

*Implementation:*

- Not suitable for most forms of harvesting or machine access. May be usable for emergency or temporary access.
- Two existing wood roads are found in the portion near the swimming hole and may provide limited access in winter conditions for portions classed 2.2, special management, nearby.
- Any soil disturbance will require a more in-depth archeological review.
- Follow District Buffer Guidelines to protect Riparian Areas and prevent bank slumping.

**B. Special Management (37 Acres)**

2.0 Wetland (5 acres): This wetland is located between the developed campground and I-91. The wetland itself is 2.7 acres in size and is a fairly typical alder swamp dominated by common wetland shrubs and herbs as well as the invasive shrub, glossy buckthorn. The area is surrounded by past and present human activity including stone walls, power lines, the park entrance road and park buildings, and I-91.

*Management Issues and Strategies:*

- Control of glossy buckthorn on the parcel, if undertaken, should include this wetland.
- Park maintenance and changes to infrastructure could impact this wetland if not conducted in a careful manner.

*Implementation:*

- There is an access road on the western edge of this wetland that will continue to provide access to park lands and buildings.
- Maintain a 50' buffer around the perimeter of the wetland in areas currently undeveloped.

2.2a Special Management Area (Mitigation Land – Deer Wintering Area) (32 acres): This parcel of moderate to steep slopes hosts a mixed forest of eastern hemlock, white pine and red and black oak. Slopes are dry and of low fertility with an understory of ranging from occasional to dense mountain laurel as well as scattered hemlock and beech. Its primary function is deer wintering area and wildlife travel corridor. It was deeded to ANR by VTrans as mitigation for DWA impacted by the creation of the Welcome Center.



*Management Issues and Strategies:*

- A stipulation of the parcel being deeded to ANR is that its use and management will continue to focus on its function as a deer wintering area.
- This parcel has many management constraints including:
  - Difficult or non-existent access from Broad Brook Road with steep, unstable approaches.
  - A likelihood of infestation by hemlock woolly adelgid which could negate its function as a deer wintering area.
  - Abundant mountain laurel in the understory, an impediment to regenerating softwood for winter cover.
  - Potential conflict between management access and recreational access at a “pool” on Broad Brook.
  - Uncertainty as to whether access is available in temporary fashion from abutting owners to the south.
  - Steep slopes along the eastern boundary and A large “bank slump” along the western boundary adjacent to the I-91 Welcome Center.
- With the numerous constraints to management, the likelihood of failure due to biologic agents and the potential conflicts with riparian areas to recreational resources, no timber or habitat management is proposed for this area. Should access be obtained, it may be considered as an amendment during the life of the LRMP.

*Implementation:*

- Treatment for control of hemlock woolly adelgid may occur as directed by FPR Forest Protection Division.
- If access from the south is obtained, harvesting to improve conditions for deer wintering may occur. Given the possibility of rapidly changing conditions and objectives due to likely hemlock woolly adelgid infestation, a treatment prescription will be formulated if and when a treatment occurs.
- Investigate “bank slump” with AOT and Rivers Management Program to determine if bank stabilization is feasible. If so, pursue funds and complete stabilization project

**C. General Management (116 Acres)**

3.0 Forestland (116 Acres): The remaining woodland at Fort Dummer State Park is Hemlock and Hemlock-Hardwood Forest on moderate to excessively steep slopes. Vegetation is generally typical for the area with no unusual species or sites.

*Management Issues and Strategies:*

- Banks above Broad Brook Road are excessively steep, erodible and potentially “slump” prone.
- A nearby sewer pipe right-of-way is in use. Its potential use for moving wood products needs to be investigated.
- Invasive plants, particularly glossy buckthorn, are encroaching from nearby openings and forest edges.
- Potential hemlock woolly adelgid infestation.

- Proximity to historic road known as “Scout Path”, Broad Brook Road (earliest settlers route into Guilford and Native American travel corridor) and Guilford Road.
- Proximity to Guilford’s first mill site and Boyden Sawmill on Broad Brook.

Where operable, manage these areas to improve softwood cover and improve stand resiliency in anticipation of hemlock woolly adelgid. Regeneration of hemlock may be difficult due to the infestation of glossy buckthorn in some areas. Therefore, limit the harvest of hemlock, where possible, control glossy buckthorn and other invasives, and monitor for hemlock woolly adelgid. Maintain and improve connectivity between hemlock areas on the mitigation land to hemlock cover on the park property by limiting new road or infrastructure and promoting softwood cover.

*Implementation:*

- Possible location for official trail to Broad Brook from park.
- Uneven-aged management to maintain/create three-size stand with approximately 15-year cutting cycle on flat to moderate slopes. May require control of invasive shrubs. Steepest slopes inoperable. Obtain and implement recommendations regarding hemlock management in relation to Woolly Adelgid from protection Section of FPR.
- Any soil disturbance on slopes  $\leq 8\%$  will require further archeological review.

**D. Intensive Management (50 Acres)**

4.2 Intensive Management Area – campground and day use area (43 acres): A 61-site campground, recreation field, and small picnic area are located in the northwest corner of the park property. The campground is arranged in two loops, one north and one south, each one being served by a restroom facility with showers and drinking water. The north loop contains 26 campsites and one handicapped-accessible lean-to, and a full hookup site provided to park volunteers. There is a large lawn area around the park entrance at the Brattleboro-Guilford town line. The south loop contains 24 campsites and 9 lean-tos. A very small day use area with several picnic tables and charcoal grills is located along the campground entrance road. There is a small recreation field with horseshoe pits, volley ball, whiffle ball, and picnic tables off of the south loop. Campsites may be reserved in advance with a two night minimum stay. The operating season for the park is currently the Friday preceding Memorial Day to Labor Day. Hunting is allowed in state parks outside of the park operating season, according to hunting seasons set by the Vermont Fish & Wildlife Department.

*Management Issues and Strategies:*

- The developed facilities are located in a heavily forested area dominated by hemlocks and oaks with little understory. Staff and visitors desire more growth on the forest floor to provide privacy between sites. There is one ecologically sensitive area (see Section 1.1a) within the park which requires special management.
- The area incorporates parts of historic farms, what is believed to be the first operational slate quarry in Vermont, and possibly parts of an 18<sup>th</sup> century military path. The slate quarry appears to have a residual lease though the holder of the lease is unclear and may be unknowable due to a complicated legal history of the original slate operation. Any redevelopment will be limited to previously disturbed areas and will be subject to review and comment by the State Historic Preservation Officer.

*Implementation:*

- Research and action to resolve/dissolve the 999-year lease on the quarry is recommended.
- The overstory will be thinned in the camping areas, to let in more light and allow air to circulate. The north loop will be thinned so that vegetation will become established on some of the campsites. The recreation field and lawns around the entrance will be maintained.
- Some redevelopment of camping facilities would occur to install hookups for RVs in the north loop. Infrastructure rehabilitation will occur as necessary. Routine maintenance will occur as needed.
- Vegetative management will be directed toward aesthetic and safety considerations. Hazardous trees within and around this area will be inventoried and removed on a scheduled basis according to Department procedures.
- Interpret historic resources including the slate quarry and revolutionary history.
- Provide access to Broad Brook from the campground for water-based recreation for campers.

4.8 Utility Right-of-way (7 acres): An underground water and sewer line connecting the I-91 Guilford Welcome Center and Brattleboro Facilities is located on the western edge of the park lands along I-91. Its location was chosen to minimize short and long term impacts to park operations. The right-of-way is cleared and in grasses and forbs and is approximately 30 feet wide.

*Management Issues and Strategies:*

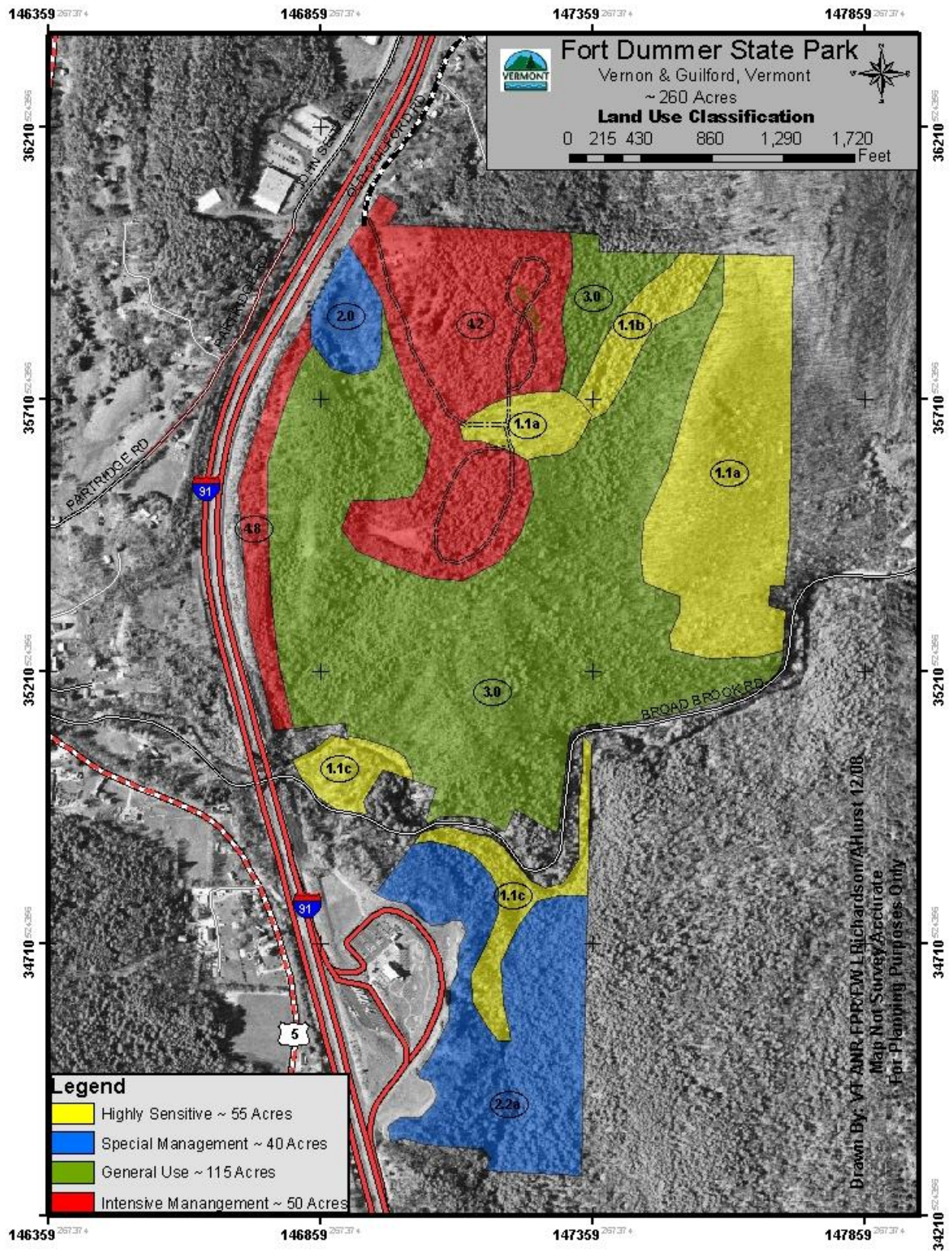
- Proximity to a historic military route known as the “Scout Path.”
- An abundance of invasive shrubs and small trees on edges and in the right-of-way could be a source for spreading invasive plants into nearby woodlands.
- While the corridor remains available for use by FPR, all uses will need to conform to the conditions set for the right-of-way (below).

Documents indicate the following conditions apply:

- The utility corridor remains the property of the State.
- FPR agrees not to construct any structures within 40 feet of “this routing.”
- The surface of the corridor remains “entirely available” for outdoor recreation.
- VTrans will allow water and wastewater lines from Fort Dummer State Park to tie into the project.
- Maintenance of vegetation in the corridor is the responsibility of FPR.
- VTrans shall have access to the corridor for maintenance and repair of the underground utility lines.

*Implementation:*

- Control of invasive shrubs within the right-of-way to reduce the production of seed to minimize spread to productive woodlands and rare plant sites and communities.



## ***Molly Stark State Park***

### **A. Special Management (62 Acres)**

2.1a Special Management Area – Lowland Spruce-Fir: Sixty acres of this uncommon natural community are found at Molly Stark State Park in two areas of the undeveloped portion of the park. Overstory red Spruce and balsam fir tend to be of low vigor. Due to their patchy nature, they do not provide functional winter cover for deer or moose. Occasional patches of dense spruce and fir regeneration are found. These provide good habitat for snowshoe hare.

#### *Management Issues and Strategies:*

- The Mt. Olga hiking trail bisects the area.
- Much of the red spruce and balsam fir are in poor health and prone to wind damage.
- There are areas of dense, established spruce and fir regeneration in need of release from overstory competition.
- Access and operability is difficult due to the lack of a landing site, truck access, areas of wet soil, and the hiking trail.
- The site is highly visible from Route 9.
- Streams and drainages travel through the southern portion.

Though this is not a state significant example of Lowland Spruce-Fir, its uncommonness justifies a management approach that attempts to perpetuate the community type. In addition, management will be designed to protect trail and stream buffers and minimize aesthetic impact from Route 9. The hiking trail will require full consideration and protection during management activities. Harvesting operations near trails will need to be designed to minimize crossings and impact.

#### *Implementation:*

- Single tree and small group selection with a long-term objective of replacing older declining spruce and fir with younger stems. Promote regeneration for snowshoe hare. Retain cherry where possible as a seed source and mast tree. Patch cuts in stand 1 should be completed every 10 to 20 years to create early successional habitats, primarily for black bear feeding.
- Harvesting will need to occur when the park is not operating unless access can be obtained that doesn't interfere with park operations.
- Maintain connectivity with other undeveloped habitats on adjacent lands.
- Maintain buffer on stream to protect associated seeps and other wetland habitats as a spring source of bear forage.
- Construct truck access and landing that minimizes disturbance to the park. Investigate temporary rights-of-way as a substitute for access development.

2.1b Red Oak-Northern Hardwood Forest (2 acres): While a common type in Vermont, this natural community is uncommon on this parcel and in the general region of Molly Stark State Park. Red Oaks are the dominant tree. As is typical in Vermont, seedlings and saplings of red oak are rare and sparse.



*Management Issues and Strategies:*

- This unit's proximity to the summit and hiking trail with its fire tower and communication site places it near a high traffic area with potential for operational disturbance. It is an important habitat area with periodic crops of acorns used heavily by wildlife. Retention of red oak long term may be difficult due to the inability to regenerate red oak.

*Implementation:*

- Limit expansion of trails and communications site to maintain this small stand at its present size.
- Retain red oak for mast production and as a seed source for future regeneration.

**B. General Management (74 Acres)**

3.0 Forestland (74 acres):

- a) Red Spruce-Northern Hardwood (2 acres): This small area is very similar to the surrounding Lowland Spruce Fir type. Different only in the broader mix of hardwood species intermixed. It is located well away from the hiking trail and, therefore, has no management constraints.

*Implementation:*

- Treat area with same principles and schedule as for 2.1a.
- b) Northern Hardwood Forest (64 acres): This large area of low vigor hardwood suffered heavy damage in the ice storm of December 2008. Many, if not most, trees have extensive damage to tops and limbs. The area has a history of storm damage and insect defoliation. Over the years, constant but moderate tree mortality here has resulted in conditions favorable to development of a beech and striped maple understory. The overstory is in poor condition, biologically and mechanically.

*Management Issues and Strategies:*

- An abundance of unhealthy, unstable stems with a poor quality understory.
- Wet ground with seeps and streams.
- Defoliation history contributing to unhealthy trees.
- Mt. Olga Trail proposal to link trail to Wilmington's town trail system approved by the Springfield Stewardship Team May 2011.

The typical silvicultural prescription for these stands is patch-clearcuts of two or more acres. These are designed to provide enough light for a more diverse understory to replace the declining stand. This system could easily conflict with the hiking trail and seep/stream buffers. Given that the hiking trail runs through the center of the area, conservative management (thinning and small group cuts) is appropriate though it will likely result in further development of a poor quality forest understory.

*Implementation:*

- Continue removing hazard trees within a tree length of the hiking trail.
- Single tree and group selection with possible patch clearcut(s) away from the hiking trail.
- Buffer seeps, streams, and the trail from harvesting impacts. Light single tree selection in those areas with no soil disturbance.
- Minimize trail crossings when harvesting and restore trail edges at completion so hikers stay on the designated trail.

- c) Northern Hardwood Red Oak Forest (6 acres): Aside from location, this site is similar to 3.0b.

*Management Issues and Strategies:*

- Proximity to communication site and viewing tower.
- Proximity to the Red Oak-Northern Hardwood type.
- Proximity to Hogback Mountain Conservation Area, roads and trails.

*Implementation:*

- Protect all infrastructure and adjoining features.
- Management/implementation in concert with 3.0b.
- Create Memorandum of Agreement with Town of Wilmington for connector trail (done).

**C. Intensive management (34 acres)**

4.2 Campground and day use area (30 Acres): Developed facilities at Molly Stark consist of a 34-site campground and day use area with picnic shelter in the northwest portion of the property. The campground is constructed in an approximately 20-acre area of mixed forest and open lawns. There are 23 campsites, 11 lean-tos (one handicapped-accessible), one full hookup site for volunteers, a picnic pavilion with seating for 60 people, and two full service restroom facilities. There are two hiking trails that loop through forested land from the campground area. This area contains the historic site of a saw mill, agricultural lands, and CCC facilities.

*Management Issues and Strategies:*

- No new development or any significant site disturbance is anticipated; however, any work carried out will be subject to review and comment by the State Historic Preservation Officer.
- The area will continue to be managed for camping and day use. Minor improvements will be made to enhance facilities, and routine maintenance will occur as needed. Hunting is allowed in state parks outside of the park operating season, according to hunting seasons set by the Vermont Fish & Wildlife Department.
- Vegetative management will be directed toward aesthetic and safety considerations. Hazardous trees within and around this area will be inventoried and removed on a scheduled basis according to Department procedures.
- Location and isolation minimizes conflicts with most other activities on the parcel except access and operations for forest management. The configuration of the land is such that

any harvesting or similar activity will impact the park with noise, truck traffic, and other disruption. For this reason, these activities should be conducted in the winter months.

4.5 Communications/Fire Tower Site (4 acres): This is an important feature for the park and a site where several trails join the Mt. Olga Trail and work roads and former leased ski trails from the former nearby Hogback Mountain Ski Area, now part of the Hogback Mountain Conservation Area (now owned by the Town of Marlboro). Functioning infrastructure includes a fire tower, 75 foot steel communications tower, a 900 square foot lease area and one small building in-service at the electronic site. Abandoned infrastructure includes one cement block structure and several lift towers and associated mechanics.

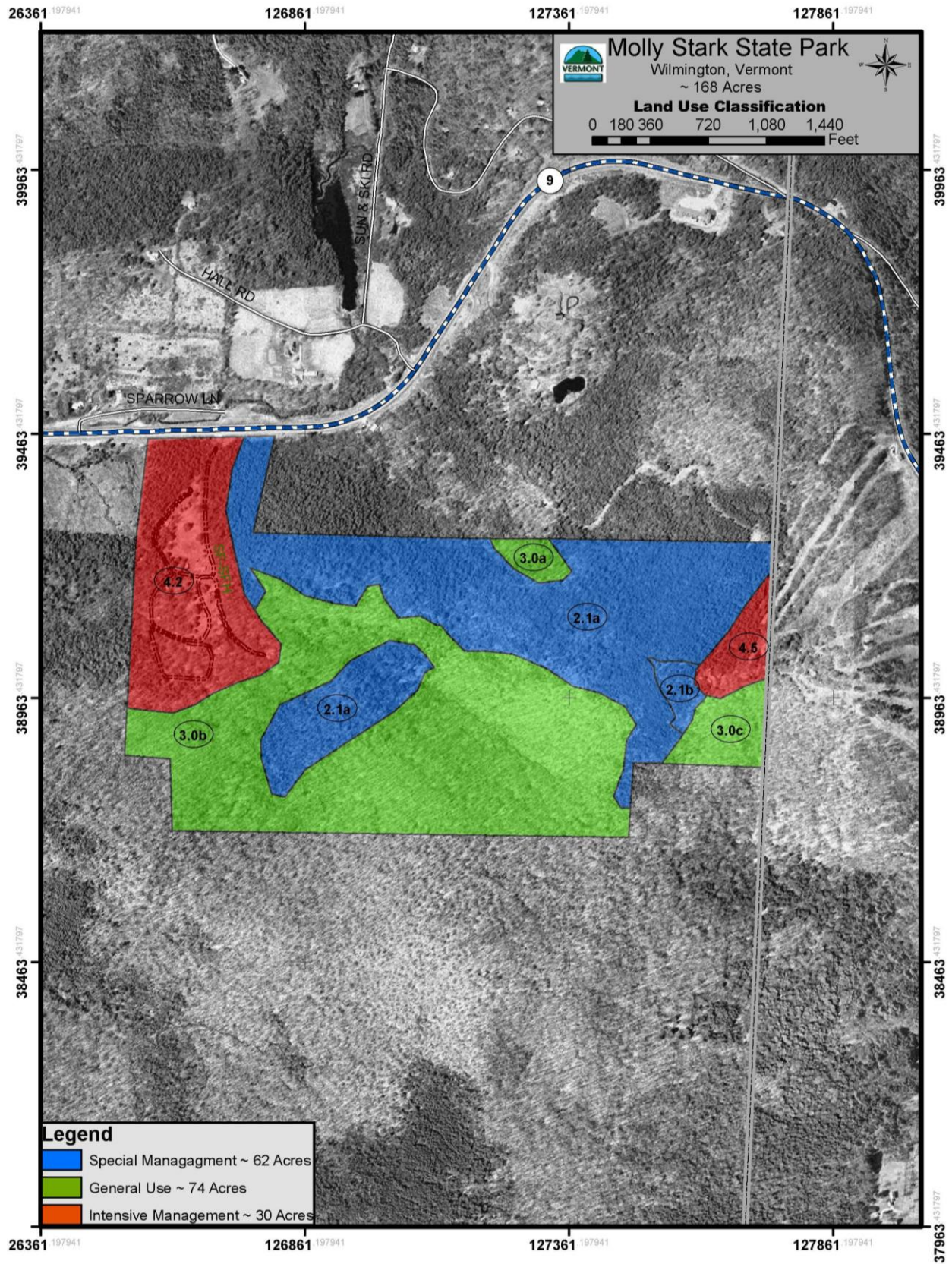
*Management Issues and Strategies:*

- The potential for conflict between recreational and commercial use exists though to date both uses have co-existed reasonably well. The site is close to the Red Oak-Northern Hardwood community that is being managed for stability of the oak component (LUC 2.1b). Expansion of recreational or communications facilities could negatively impact the Red Oak Community if not carefully planned and executed. HMCA trails siphon away potential park day users and allow people to use mountain top facilities without contributing to the cost of maintenance. Abandoned ski area equipment is well away from the public-used summit and is believed to pose little risk to the public.

*Implementation:*

- Continue periodic maintenance and inspection of trails and fire tower.
- Renegotiate communications lease beginning in 2016.
- Do not allow site to encroach on Red Oak-Northern Hardwood Forest.
- Monitor for and prevent off-roading spillover from HMCA roads.
- Be prepared for a request for a trail MOA with HMCA (has been approved).
- Work cooperatively with National Grid to manage the infrastructure at the summit and the power line.
- Explore options for removing abandoned structures.





## ***Sweet Pond State Park***

### **A. Highly Sensitive Management (1/2 acre)**

1.4 Franklin Cemetery (1/2 acre): Located near the access to the parking area and trail head, the cemetery sees occasional visits by park users and local people. It is a typical old Vermont cemetery, being surrounded by stone walls, and it is maintained by the local historical society.

#### *Management Issues and Strategies:*

- Cemetery is partly surrounded by a red pine plantation showing signs of disease (*Fomes annosus*) and susceptibility to windthrow.
- Falling or felled trees could easily damage headstones or walls.
- Any management within view of the cemetery should be aesthetically neutral.
- Potential hazard trees near the cemetery should be cut for safety reasons.

### **B. Special Management (39 Acres)**

2.0 Sweet Pond, Wetlands and Buffer (39 acres): Sweet Pond is one of only two significant waterbodies in Guilford, both owned by ANR. Sweet Pond is comprised of 18 acres of ‘open’ water and five wetland community types (see Natural Communities map, page 79). Two of these are uncommon wetland types. The pond and adjacent wetlands provide important wildlife habitat and are a main feature along the hiking trail.

#### *Management Issues and Strategies:*

- Two possible conflicts arise in relation to wetlands on the property. The first is with firewood harvest and maintaining the integrity of the sugar maple-ostrich fern floodplain forest. The second is the trail location through wetlands on the north end. Maintaining a 100-foot buffer around the pond should serve to protect the sugar maple-ostrich fern floodplain forest. The trail has been evaluated by the State Ecologist and no problems were found. The current system of locust sills and hemlock planking over wet areas was recommended by the wetlands Section and has worked well.

#### *Implementation:*

- The limited extent of ownership on the north end of the pond prevents trail rerouting. Without passing through this area, the trail would no longer be a full loop. Continue to maintain ‘beaver deceivers’ and a pole and plank walkway on this end to allow continued use and protection of wetland plants.
- Maintain a 100-foot buffer around the pond where existing use will not change and the primary purpose will be an intact undisturbed riparian zone around the pond.

## C. General Management

3.0 Forestland (55 acres): Mixed coniferous and deciduous forests are found on the eastern and western hillsides above Sweet Pond.

### *Management Issues and Strategies:*

- Though the hemlock stands are not mapped as critical deer wintering area, they do provide useful wildlife cover. These hillsides also are important aesthetic features from the pond and hiking trail. Other important considerations include:
  - Proximity to the hiking trail.
  - The State retains management access on both the Old County Road and discontinued town road # 41.
  - A visually important red pine stand at the entrance to the parking lot will require careful management as red pine stands are prone to blowdown if un-managed or managed too aggressively.
  - Important mast production areas and individual trees (oak and hickory) are found throughout the western section and will be a feature of management.
  - Consideration of aesthetics from the trail and pond will be a critical component of forest management projects.
  - Harvests will be designed to improve wildlife habitat and the improved growth of higher value trees.

### *Implementation:*

- Uneven-aged management with single tree and group selection in Mixed Forests to promote softwood cover, mast trees, quality sawtimber growth and regeneration of mixed species.
- Thinning in the Red Pine plantation with Borax application on stumps to B Level stocking.

## D. Intensive Management (5 acres)

4.3 Residence, Original Sweet Farm Site and Remnants of Historical/Industrial Use (4 acres):

The developed part of the park consists of a house and garage surrounded by approximately two acres of lawn, a public parking area, historical remnants, and the park access road.

### *Management Issues and Strategies:*

- **Residence --** The residence is currently rented but is considered to be in very poor repair and to have a limited future structurally. Once vacated by its current tenants, it would not be suitable for re-rental. Review by maintenance staff and a structural assessment by Lalancette Engineering indicate the cost to restore the building is high and not a good use of limited resources. The historical assessment by UMaine indicates current structures are of moderate importance. Because the home is currently rented, it is difficult to promote this site for public enjoyment.
- **Historical Area –** The homestead is adjacent to a historic cemetery and is on or near the site of the original farm homestead. An abandoned road with a stone arch bridge over Keets Brook is adjacent to the residential area. The remnants of the original farmstead

and County Road are considered highly significant and historically important. No new development is planned in this area. If and when the house and garage are removed, this will be subject to review and comment by the State Historic Preservation Officer.

- **Trail Parking Lot** – A small gravel parking lot designed for up to five vehicles is located adjacent to the farmhouse. It has recently seen maintenance including gravel, hazard tree removal, and placement of stone barriers to define the extent of the parking area. Maintenance occurs on an annual basis.

*Implementation:*

- Vegetative management will be directed toward forest management, aesthetic, and safety considerations. Hazardous trees within and around the residential and parking areas will be inventoried and removed on a scheduled basis according to Department procedures.
- Once the residence is vacated, remove and restore site to grassland. Per protocol, the State Historic Preservation Officer's concurrence will be necessary.
- Stabilize stone culvert in danger of collapse.
- Map and inventory features if a qualified volunteer or organization is available.

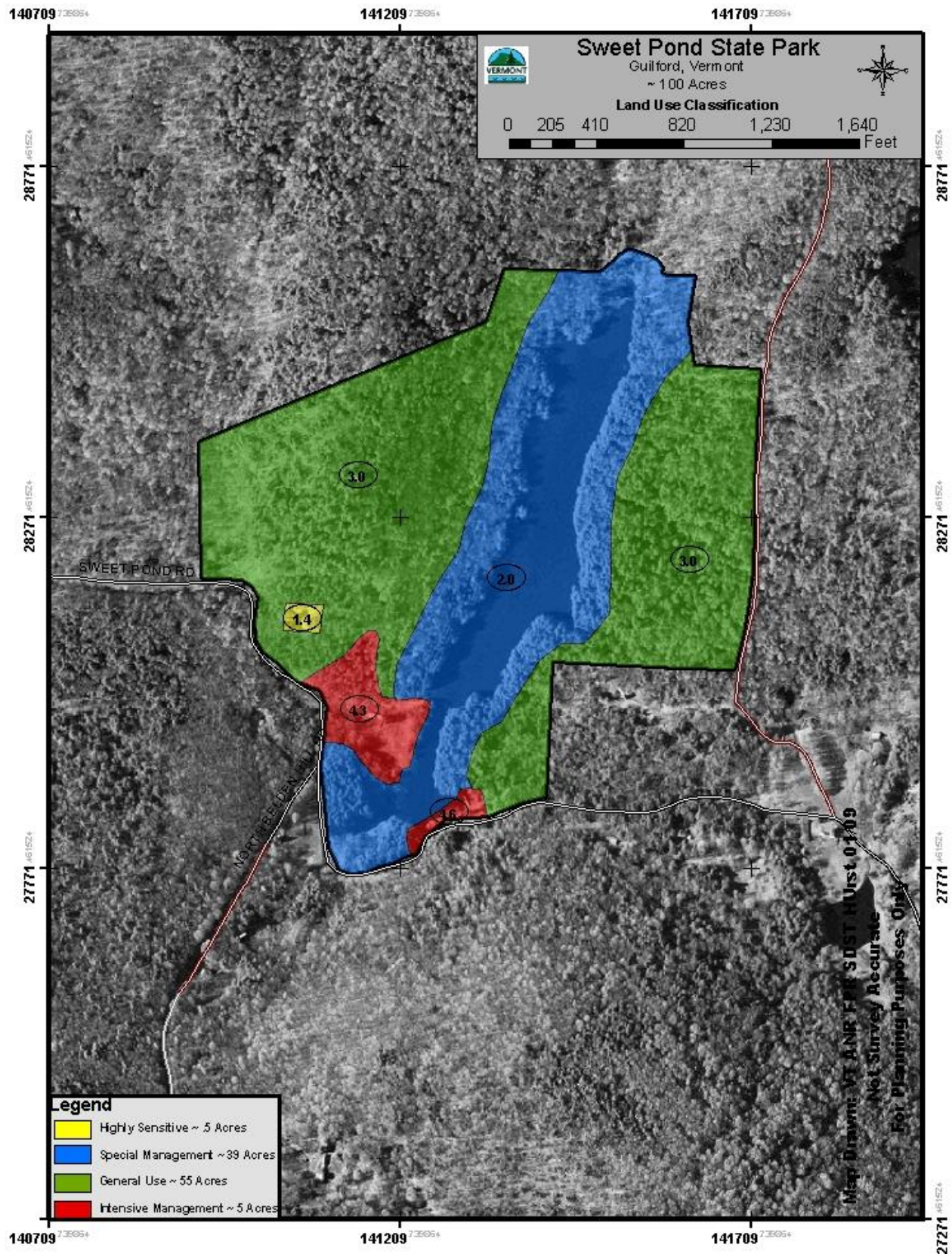
4.6 Sweet Pond Dam/Boat Launch (1 acre): Located on the south end of the pond, the dam and boat launch are a small but critical component of Sweet Pond State Park.

Sweet Pond Dam – The Sweet Pond Dam is located on the southeast corner of the parcel. The dam has recently been assessed in 'poor condition' by the Vermont Department of Environmental Conservation Dam Safety Program. The dam has also been reclassified as a "high hazard" category structure due to the hydrology of Keets Brook and downstream development. The pond was drawn down in April, 2011 as ordered by DEC Dam Safety. An Emergency Action Plan has been prepared and distributed to the Town of Guilford. An engineering analysis of future options for dam rehabilitation, replacement or removal is underway as of June, 2011.

*Management Issues and Strategies:*

- The impoundment behind the dam may be maintained for water-based recreation if it is judged to be economically feasible and sustainable.
- Improve the existing car-top boat access with crushed stone placement, defined parking, and brush removal.
- Follow the recommendations provided by the Department of Environmental Conservation regarding the "Emergency Action Plan" for the Sweet Pond Dam's repair, replacement or removal. Limited capital resources will require careful consideration in determining the future of the Sweet Pond Dam.





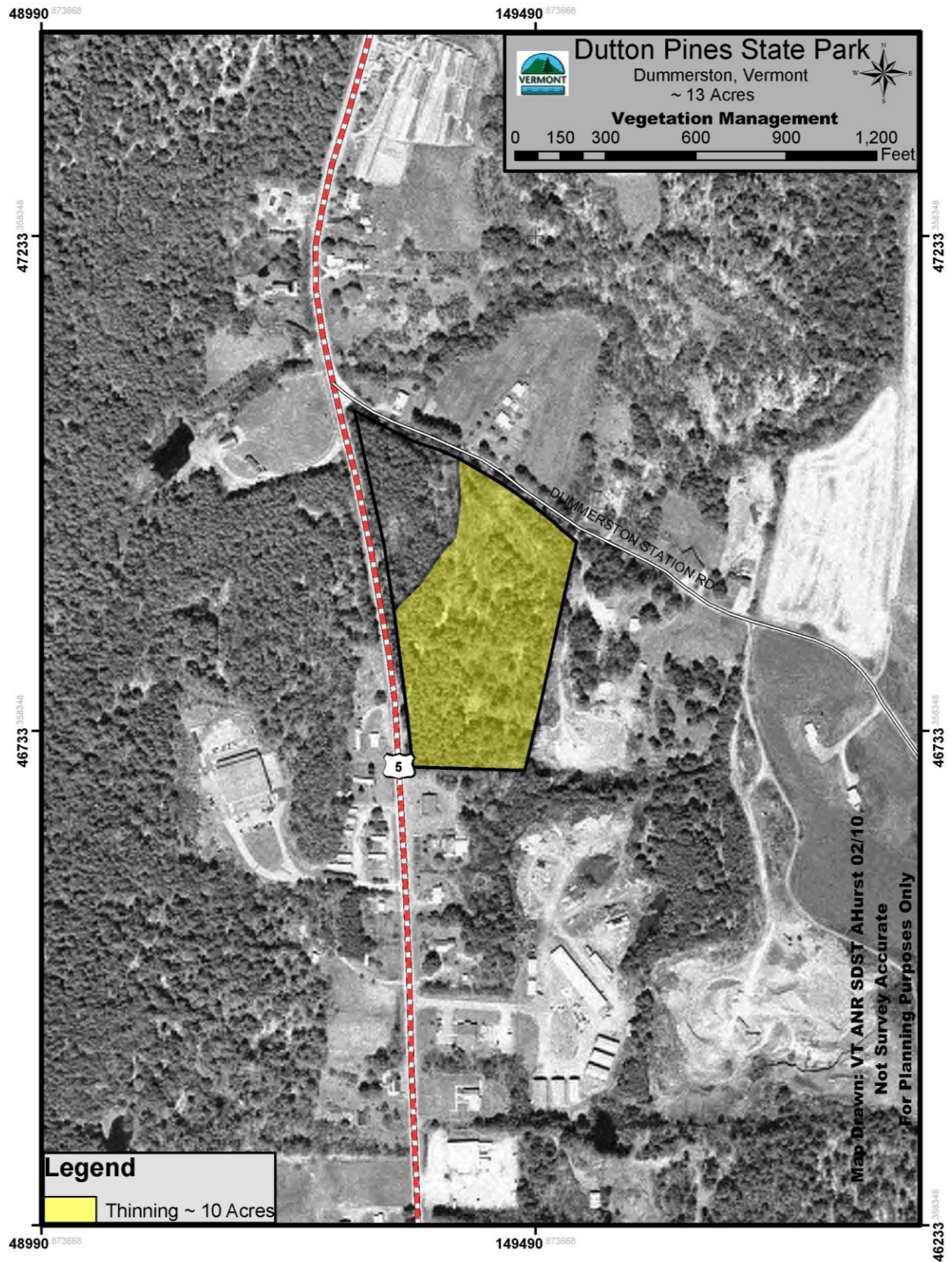
## Implementation Schedule

*For in-house scheduling purposes*

### *Dutton Pines State Park*

Approximate Year	Treatment #	Treatment/Outcomes	Acreage	LUC's	Constraints/Special Considerations	Est. Second Entry	Block/Comp/Stand
2011	—	Gate access road to protect infrastructure.	—	2.9	Done in cooperation with Housing Foundation, Inc.	—	—
	—	Evaluate options for CCC structures.	—	2.9	In Cooperation with Vermont Division for Historic Preservation.	—	—
2012	1	<p>Thinning to improve health, vigor, and long-term stability of stand.</p> <p>Understory treatment to promote pine and oak regeneration.</p>	—	2.9	<p>Protect Housing Foundation, Inc. infrastructure and any historical remnants of CCC.</p> <p>Maintain attributes of White Pine-Red Oak-Black Oak community.</p> <p>Due to disease and windthrow, potential to conduct modest thinnings at 10-year intervals.</p>	2022	—





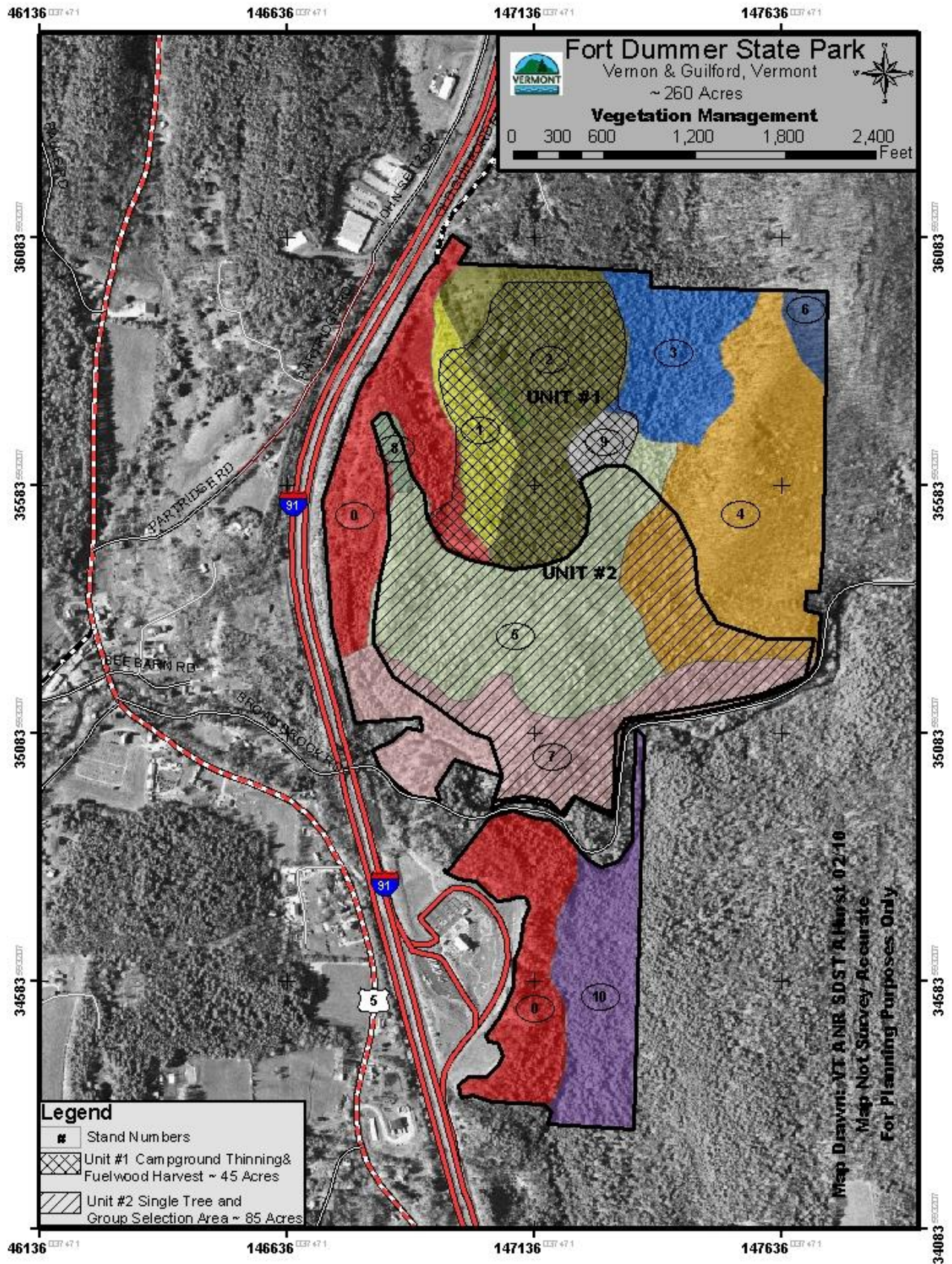
## Implementation Schedule

*For in-house scheduling purposes*

### *Fort Dummer State Park*

<b>Approximate Year</b>	<b>Treatment #</b>	<b>Treatment/Outcomes</b>	<b>Acreage</b>	<b>LUC's</b>	<b>Constraints/Special Considerations</b>	<b>Est. Second Entry</b>	<b>Block/Comp/Stand</b>
2012	—	Natural community interpretive sign.	—	1.1a	To be placed along hiking trail.	—	—
2012-2015	1	Firewood harvest in Stand 9. Thinning within campground.	45	1.1a	Favor oaks for retention. Retain Scarlett oak.	—	9
2014	2	Single tree and group selection to develop 3-aged stand. Improve deer wintering area and improve mast production.	85	3.0 4.2	Will require assessment and possible treatment of invasive plants before and/or after harvest.	2029	3, 5, 7 & 8





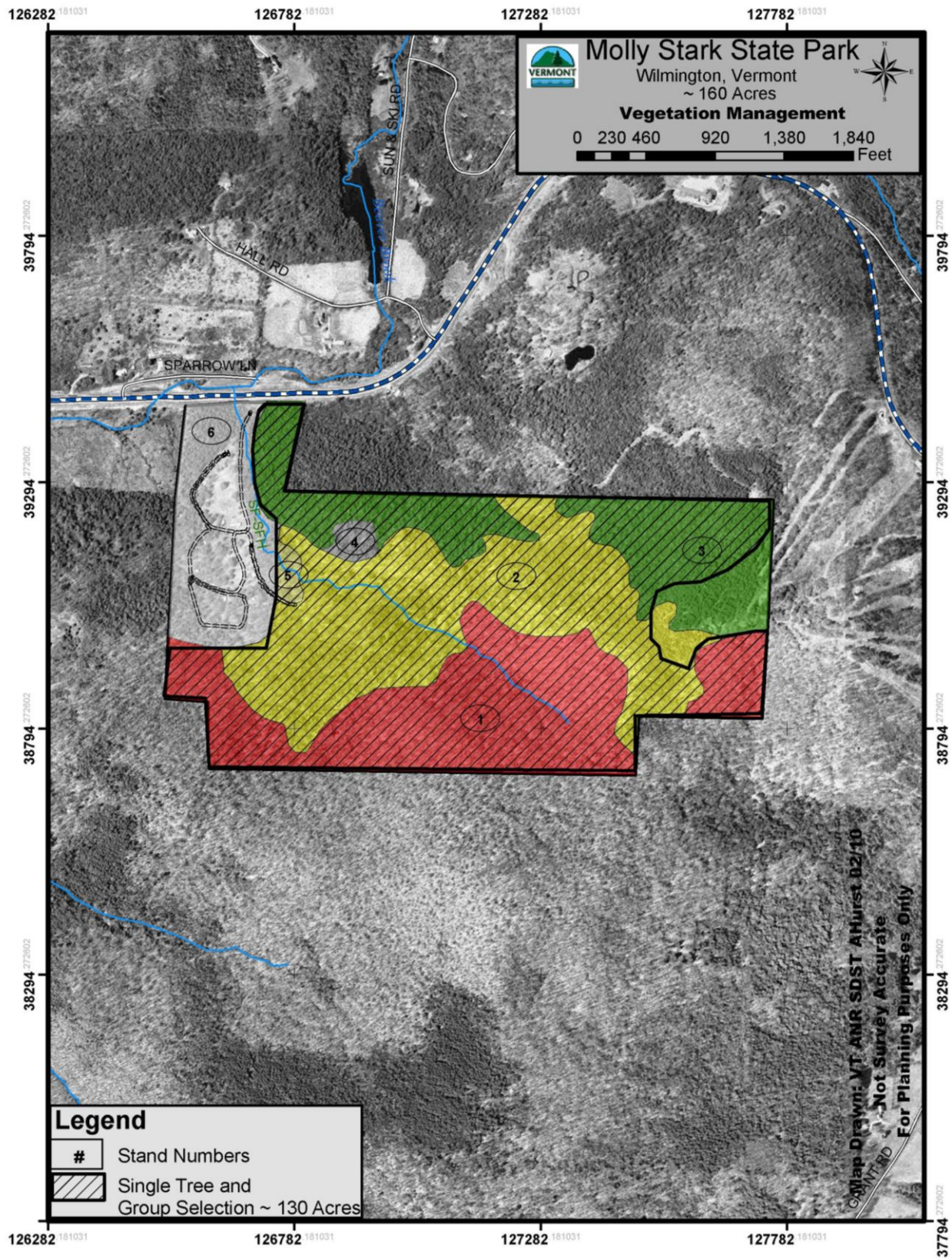
## Implementation Schedule

*For in-house scheduling purposes*

### *Molly Stark State Park*

Approximate Year	Treatment #	Treatment/Outcomes	Acreage	LUC's	Constraints/Special Considerations	Est. Second Entry	Block/Comp/Stand
2014	1	Single tree and group selection with groups up to 1 acre to improve habitat and growth of quality timber. Complete up to 3 – 5 acre clearcuts where buffer and aesthetic considerations allow.	130	2.1a 3.0	Protection of recreational uses and values; park and communications infrastructure; riparian areas and aesthetics from park and Route 9.	2029	1-5
2016	—	Re-negotiate communication site lease.	—	4.5	Protection and enhancement of recreational uses and structures.	—	—





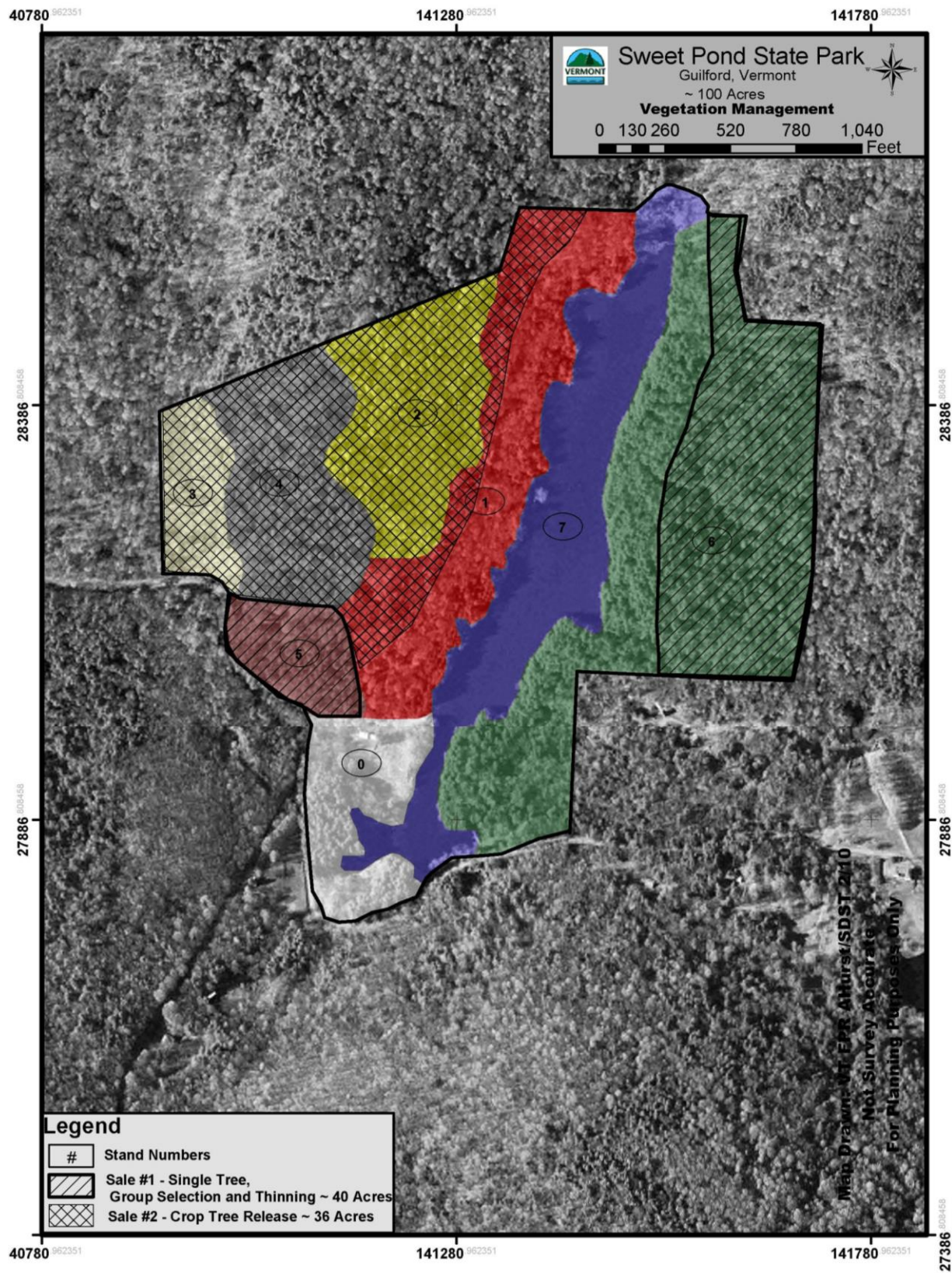
## Implementation Schedule

*For in-house scheduling purposes*

### *Sweet Pond State Park*

Approximate Year	Treatment #	Treatment/Outcomes	Acreage	LUC's	Constraints/Special Considerations	Est. Second Entry	Block/Comp/Stand
2012	—	Improve boat (non-motorized) access to Sweet Pond at its current location.	—	4.6	Review with Lakes & Ponds management section regarding shoreline permit	—	—
2012-2015 ongoing	1	Investigate options for repair, replacement or removal of dam.	—	4.6	Limited Capital Funds.	—	—
2014	—	Evaluate options for Removing residence and stabilizing site and historical resources.	3	4.3	In cooperation with Vermont Division for Historic Preservation.	—	—
2014	1	Single tree and group selection stand 6. Thinning stand 5. Release regeneration stand 6. Improve long-term stability and health of red pine in stand 5 and hemlock in stand 6.	40	3.0	Franklin Cemetery.  Recreational features.  Viewshed from trail and pond.	2029	5 & 6
2019	2	Crop tree release in northern hardwood and for individual mast trees. Single tree and group selection in mixed stands.	36	3.0	Viewshed from trail and pond.	2034	1-4





## **V. Appendix**

- A. Public Input
- B. Ecological Assessment and Natural Community Description and Maps
- C. Special Constraints and Title History for the Brattleboro Management Unit
- D. Historic Resource Assessment and Maps (with Legal Constraints)
- E. Recreational Assessment and Maps
- F. Relationship to Town and Regional Planning
- G. Timber Assessment, Stand/Soil Maps, Inventory Summary
- H. Brattleboro Management Unit Wildlife Assessment
- I. Aquatic Habitat and Fisheries Assessment
- J. Amphibian/Reptile Assessment
- K. Fort Dummer and Sweet Pond Breeding Bird Survey
- L. Sweet Pond Dam Assessment, Facilities Engineering 2007-2009, Annual Dam Safety Inspections
- M. Dutton Pines State Park Well Easement
- N. Sweet Pond House Inspection
- O. Glossary
- P. Town of Dummerston Letter Regarding Dutton Pines State Park
- Q. Trail Connectivity Map Between Wilmington Town Trails, Molly Stark State Park, and Hogback Mountain Conservation Area

## Appendix A: Public Input

### Summary of Public Meeting Comments and Written Comments Brattleboro Management Unit Long Range Management Plan

#### General

- Request that State Lands plans leave open the possibility for state land ATV connector trails based on the law and agency rules pertaining to such trails at the time of any proposal and on the individual merits of each proposal.

**Response:** The future use of ATVs within the BMU is not addressed in this LRMP. Decisions regarding ATV use on BMU lands in the future will be based on ATV laws, regulations, and Department policy existing at the time a proposal is received.

---

- Could a site or sites for maple sugaring lease(s) be designated in parcels of the BMU? If there are no sites currently could the LRMP be written in such a way that maple leases are not precluded. – *Vermont Maple Sugarmakers Association*

**Response:** FPR has been working cooperatively with the Vermont Maple Sugarmakers Association since 2008 to allow maple sugaring on state land under the jurisdiction of the Department available under license agreement to sugarmakers for tapping.

As part of the Department's initial evaluation process, our foresters reviewed the potential for establishment of a sugaring license area in all four State Parks within the BMU. Analysis of forest stand inventory data concluded that sugar maple trees do not currently exist in large enough numbers to be practical for any type of maple sugaring operations at this time. This does not preclude the possibility of designation of areas for sugaring on any of these areas if conditions change in the future.

---

#### Dutton Pines State Park

- Is there talk of transferring ownership of Dutton Pines State Park?
- Is there a plan to transfer or move buildings at Dutton Pines State Park?

**Response:** Options to transfer or the lease of the property to another entity that would maintain it as a public park will be explored. Doing so would require legislative and Governor approval. Cost is not known. Moving structures to another site will be considered only if all other options for finding a use and maintaining them on site fail.

---

- Do you have information that Dutton Pines State Park has deed stipulations that it be maintained as a public park?

**Response:** There are no restrictions on the deed transferring title to the property from Edith Dutton to the State of Vermont.

---

- What does “in-house” mean for transferring ownership?

**Response:** To another division of Vermont State government with compatible goals.

---

- Dummerston Selectboard would want to be involved in any conversation regarding change of use for Dutton Pine State Park.

**Response:** Duly noted.

---

- Can the wells be removed at Dutton Pines State Park?

**Response:** FPR is negotiating a new easement on the wells which requires that any or all infrastructure no longer needed by HFI be removed at the time it goes out of service.

---

- An extensive response regarding Dutton Pines State Park was written and sent on behalf of the Dummerston Commission.

Important points were:

- Improving the local recreational value of Dutton Pines State Park is important to the Town of Dummerston.
- Town of Dummerston should actively identify new recreational areas that could be purchased by the Town or acquired by gift.
- There is a lack of recreation areas in Dummerston for people of limited mobility. Dutton Pines could serve this purpose. This road should not be graveled due to impacts to those who use walkers or wheelchairs.
- Development of more trails in the lower section should be investigated.
- The Agency has an obligation to maintain Dutton Pines State Park as a public use park.
- Dutton Pines State Park is an important historic site and should be treated as such, including maintaining stretchers and keeping them on the property and preserved in place.
- Continuing the forest management that began here in 1887 should continue but in a careful manner and with an eye to preventing harmful side effects.
- Any gate installation should be in keeping with the historic nature of Dutton Pines State Park. Designs from the late 1800s or early 1900s would be preferred.



**Response:** The LRMP will be edited to reflect our acceptance and agreement with many of the main points above. We have begun a process with the Division for Historic Preservation to write a Preservation Plan to determine the future of the structures at the site. We would welcome an official proposal from the Town of Dummerston to assume ownership and management or more simply a Memorandum of Understanding to share management or leave of the parcel.

---

## **Fort Dummer State Park**

*Regarding Fort Dummer State Park campground:*

- What is driving the idea behind adding RV hookups?
- Currently good relationship between private campground (KOA) and Fort Dummer based on niche and price, currently avoids competition. Fear that hookups at Fort Dummer will blur niches, and create unfair competition. Analogous to the State growing crops at a lower cost and selling at a lower price and unfairly competing.
- Vermont Campground Association neither supports or opposes water and electric hookups at Fort Dummer. Putting in sewer hookups would be opposed.
- Whatever goes into hookups should be limited so as not to compete with private campgrounds.
- There was some discussion and comment about expanding the hookup services at Fort Dummer State Park, and you were pressed by two in the audience (commercial campground owners) to not add too much service nor allow the fee structure to become too low. They were fearful of competition from a public and less expensive facility. I urge you not to pay attention to their argument and wishes. Public parks are made, maintained, and supported by the common good with public money. While their purpose should not be to develop to compete with private facilities, they should also not be developed to protect private facilities from competition. To do so limits access by the people who need low cost access the most.

**Response:** Water and electrical hookups are being proposed in response to visitor requests and demands for these services and to increase attendance at Fort Dummer. Up to 25 sites are being proposed to have water and electrical hookups added; no sewer hookups are anticipated. Campsites with these added amenities will be priced according to local market rates, and will be competitive with other similar offerings. The nature and character of state parks make competition with private campgrounds unlikely; state parks and private campgrounds offer vastly different experiences and atmospheres. General fund tax dollars do not pay for regular operations and maintenance of state parks, therefore, the price of State Park offerings currently and in the future will continue to reflect the actual costs of operating the facilities.

---

- What is the plan for the trail and swimming area at Broad Brook?
- Swimming hole at Broad Brook should remain open to all.
- Important that public access be maintained so that higher water quality standards will be enforceable on Broad Brook.

**Response:** A simple foot path on a woods road is the idea for access from the Fort Dummer State Park to Broad Brook. We agree that the swimming hole should remain open to the general public.

---

### **Molly Stark State Park**

- Are there any preliminary plans for road building for timber harvesting at Molly Stark State Park?

**Response:** Timber harvesting requires “skid roads” in the woods and truck access to log staging areas. We hope to conduct scheduled harvests without constructing any new truck roads. If truck roads are required, they will be built to minimize visual impact.

---

- Have you heard from mountain bike clubs on any of the parcels other than Molly Stark?

**Response:** No mountain bike proposals have been received, however we received a proposal on March 27, 2011 for a short connector hiking trail on the southwest corner of the parcel to connect Wilmington town trails to Hogback Mountain Conservation Area trails via Molly Stark State Park.

Staff received this proposal and determined that there would be minimal impact to the park and forest lands, but that the project would have high recreational value. Staff is working directly with the Wilmington Trails Committee to develop a Memorandum of Understanding and connector trail.

---

- What happens to the communications site at Molly Stark State Park when the lease expires?

**Response:** In 1978, the State of Vermont leased the Mt. Olga electronic site to New England Power Company (now National Grid) for an initial 10-year term plus four 10-year renewable lease extensions. The current lease extension with National Grid expires on June 30, 2018.

When the lease with National Grid or their successors is terminated, they have the option of selling their building and associated facilities under the lease to the State. In the event the State is not interested, they are required: “to remove the building and all other microwave facilities installed upon leased premises and restore the area to the same condition that they were in at the beginning of the lease.” It is also possible the lease would be renegotiated and extended.

---

- Molly Stark Fire Tower is a popular site in need of additional maintenance. Could it be refurbished in the same way the Okemo fire tower was recently?

**Response:** The work that was recently done on the Okemo fire tower was also recommended for the Molly Stark fire tower by our Vermont Facilities Engineering Division during a tower inspection conducted in 2006. We would like to see this work done on the Molly Stark fire tower; however, we do not have the funding available at this time to conduct this work.

---

- Would snowshoe hare habitat improvement be contingent on thinning or road building?

**Response:** Snowshoe hare habitat improvement will be done through commercial tree harvest. If a harvest is not completed, it's unlikely the work will be done.

---

- What would you do to manage for hare differently in red spruce?

**Response:** In coniferous stands, the goal is generally the same – create areas of young coniferous saplings for cover and deciduous saplings for food.

---

- How are you going to get successful regeneration in deciduous areas on the parcels where there is high deer density?

**Response:** We may not without aggressive harvesting and deer population control.

---

- There is a new road that accesses the US Cellular property along the northern park boundary (Molly Stark State Park).
- Cell tower access road has logging trails that go toward state park (Molly Stark State Park).

**Response:** We will investigate this option first.

---

### **Sweet Pond State Park**

*Regarding the Cemetery at Sweet Pond State Park:*

- What are you doing to protect the old cemetery?

**Response:** Thinning around the cemetery will be conducted in a conservative fashion to remove trees that are a threat to the cemetery. Skilled work crews will be used to make certain the cemetery and fence are not impacted.

---

*Regarding Communication with Town of Guilford:*

- How will you communicate with the Town of Guilford?

- The Selectboard should be kept informed with any developments regarding Sweet Pond Dam.
- Who is on the distribution list and how do we get on it for information about Sweet Pond and upcoming decisions?

**Response:** Communication to the Town is through the Town Administrator.

---

*Regarding Historic Site Protection at Sweet Pond Dam:*

- Dam may qualify as a historic site as may the house, and protected as such.
- How do you work or interact with the Division for Historic Preservation around historic sites or areas?

**Response:** FPR works closely with the Division for Historic Preservation on all projects that may potentially impact structures more than 50 years old or might impact prehistoric resources. The Sweet Pond dam and the Sweet house are more than 50 years old and standard procedures for DHP concurrence are being followed with both structures.

---

*Regarding House at Sweet Pond:*

- How did the Sweet Pond house get to such a deteriorated state with long-term residents?

**Response:** The condition of the house is not related to tenancy. The house was originally constructed as a summer residence, and was converted to a year-round residence a number of years ago. Like many old homes in Vermont, it is in need of a large amount of major maintenance simply due to its age.

---

*Regarding Pond Drawdown:*

- What is time frame for water drawdown?
- Who makes the final decision to drain pond?
- A number of letters questioned the need for the emergency drawdown and asked that it be postponed.
- The pond is habitat for many animals and plants that will be in jeopardy when the pond is drained.

**Response:** As instructed by Dam Safety, drawdown began soon after the public meeting. Rate of drawdown was monitored and fine-tuned daily to minimize siltation and prevent bank erosion downstream, and minimize impacts to wildlife. The area was checked repeatedly during drawdown for signs of any rare, threatened, and endangered animal species and none were found. Erosion control measures are being executed as issues are identified post-drawdown.

---

*Regarding Sweet Pond and Sweet Pond Dam:*

- Sweet Pond is a valuable resource to the community. We urge you to replace the dam.

- How can the park be called Sweet Pond State Park without the pond and dam? It would be Sweet Pond Mud Hole which would not represent the same values.
- The hiking trail is frequently used and removing the dam would negatively impact the trail as well.
- What would the costs be to repair vs. replace?
- What is impact downstream if dam is removed?
- Please replace the dam.
- Would a preference on the size of water body help support or minimize the risk by having a smaller impoundment to retain some recreational value?
- General perception that this part of the state is neglected – replacing the dam will go a long way to improving public's perception.
- What is time frame for decision making for removal and/or replacement of Sweet Pond Dam?
- There needs to be a wetland area at Sweet Pond – it is used locally as an educational resource for local school children to observe wildlife.
- The town leadership and community fully support maintaining Sweet Pond and dam as a recreational, educational, environmental, aesthetic, historical, community resource. These arguments were made both for not draining the pond now and for fixing or replacing it if we must draw down.
- One letter suggests that by making it a hydro station, green energy capital might be available (Guilford Conservation Commission).
- Sweet Pond and Sweet Pond State Park are a prized feature of Guilford, and folks consider it a sort of community centerpiece physically and spiritually. Its loss would be felt deeply by those who wrote and those they spoke for.
- The State should allocate all funds necessary to replace the dam with a modern structure that is safe for downstream residents and properties.
- The dam should be repaired, not replaced.
- What is the estimated cost of repairing the dam? When would it start and how long might it take? If there is a funding gap, how much is it?

**Response:** District staff agrees that Sweet Pond is an important recreational and community resource and that Sweet Pond State Park could be diminished without it. Replacement or repair of the dam is not a given but two possible outcomes. The offered community support and partnership will be critical to a positive outcome.

Technical questions posed in both written and verbal comments will be answered by a contracted engineering study by Dubois & King that examines five possible futures:

- 1) Rehabilitate the existing dam so that it meets high-hazard engineering requirements
- 2) Replace the existing dam in the same spot with a new structure that meets high-hazard engineering requirements
- 3) Replace the existing dam in a new location with a new structure that meets high-hazard engineering requirements
- 4) Replace the existing dam in a different location with a smaller pool if the smaller pool size will result in a lowered hazard category rating
- 5) Remove the dam and restore the pre-existing stream condition.

A final decision regarding the selected alternative rests with the Agency of Natural Resources. We expect this process will take several years.

---

- The Guilford Fire Department supports keeping Sweet Pond as a rural water source for fire protection.

**Response:** If the dam is replaced, FPR would like a formal request and proposal for a dry hydrant from the Town of Guilford.

---

- Has the damage a failure would cause be quantified? What structures would need to be moved to correct it?

**Response:** The hazard rating analysis projects significant damage to several homes, roads, other property and Keets Brook, as well as extreme danger to people in the area in the event of a dam breach. The document may be viewed at Guilford Town Hall. We believe moving people's homes and buildings to other lands is not a feasible solution from an economic or legal standpoint.

---

- Without the pond, we would have only a 20-acre mud hole.

**Response:** The pond will re-vegetate naturally over time.

---

- Was the annual maintenance not done? Did this contribute to the dam's condition?

**Response:** Annual maintenance was completed as directed by Dam Safety.

---

- How does emergency drawdown fit into "no net loss policy for wetlands"?

**Response:** We are not aware of a specific policy of this nature but regardless, public safety trumps this issue. It is not anticipated that the pond drawdown will have an effect on the existing wetlands on the north end of the pond. In the short-term while the pond is drawn down, wetland acreage might even increase.

---

- The community would like a role in preserving the pond and replacing the dam.

**Response:** An active partnership is welcome and as of June 16, 2011, was developing.

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- Would The Nature Conservancy be interested in funding the project (of dam restoration)?

**Response:** The Nature Conservancy is primarily interested in conservation of rare, threatened, and endangered species and rare natural communities. None of these attributes are found at Sweet Pond.

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- Draining the pond in the short term may be important for public safety, but it is not the long-term solution. The Town would like to work collaboratively with the State to locate public and private funds to repair or replace the dam. Had the Town been notified sooner, they would have had time to find a solution.

**Response:** We notified the town and public within two weeks of receiving notice of the downgraded condition and rating. The unexpected downgrade did not give time for advance notice or fundraising.

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- Do not remove the dam until a solution for replacement is found.

**Response:** We will have to follow the ongoing recommendations and requirements of the Dam Safety Division.

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- “Removing the dam is an issue of safety for people living downstream of the dam. That should be paramount in people’s minds. As you probably know, at the state level this is an extremely tough budget year and there are no funds available through the state for the repair. So the only response to being safe is to remove the dam. This is the same situation faced by a private owner without the resources to repair or replace the structure.

Removing the dam at Sweet Pond will not create a mud hole. The land where the pond was located will regenerate within a year the way all dam reservoir areas do once the dam is removed to a landscape of fens, woody plants, and grasses. Its regeneration will then follow the usual pattern of forest regeneration of succession growth ending with a climax growth forest 50+ years out.

Streams as well as ponds are beautiful. It is the natural condition of Keets Brook to be flowing. Once the dam is gone, the streamwater temperature will drop back to normal levels recovering from the artificially high temperatures caused by the reservoir effect of slow moving, open and sun exposed water. Dissolved oxygen levels will rise with the lowering of the temperature of the water making the habitat healthier for the aquatic species living in the brook.

Keets Brook will reestablish itself as a natural stream. It will be home to aquatic insects and the usual assortment of amphibians, and fish will return to the stream. There is nothing ugly or not to enjoy about a stream. The same benches with information kiosks would be just as

enjoyable looking and learning about natural stream conditions as looking at an unnatural pond.

As I have said, I assure you the State does not have the money to replace the dam. Even if there were funds, I ask you to reconsider the value of a natural running stream.” – *Rep. David Dean*

**Response:** We agree that restoration of stream quality and natural attributes is one of ANR’s most important goals. In the case of Keets Brook, the stream is considered by F&W staff and ANR’s Watershed Coordinator to be compromised by other impoundments and roads to the extent that permanently removing the dam would not make an appreciable difference.

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- Sweet Pond is the swimming area in Guilford because you can’t swim from access at Weatherhead Hollow.
- Look into developing a swimming hole at Weatherhead Hollow Pond.

**Response:** Swimming is allowed at Weatherhead Hollow but not from the physical fishing access point on the southeast corner. Because Pittman-Robertson funds purchased, created, and maintain the area, federal rules require the primary use and function be for fishing.

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- Would attendance figures help?

**Response:** Attendance estimates would help if objective and provable.

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- Are there other funds that can be looked at or other sources to help out with the dam – wetland preservation or restoration?

**Response:** There are several funds that may apply, pending completion of an engineering study and a replacement decision, ANR will explore all options.

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- How many acres will be thinned around Sweet Pond?

**Response:** Seventy-six acres are scheduled.

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- What agreements are in place that obligates the State to follow through on certain conditions?

**Response:** The LWCF grant Section 6(f)(3) Encumbrance requires FPR to maintain the property for “public outdoor recreation”. As long as public can access the property to recreate, this condition is presumed to be met.

There are no deed easements or conditions that require maintenance of the dam, pond, or recreational access.

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- What is the connection with Weatherhead Hollow Pond and why is it not included?

**Response:** Weatherhead Hollow is a fishing access area (AA). AAs are administered out of the main office of the Fish & Wildlife Department.

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- How will the trail be maintained at Sweet Pond if there is no house and resident?

**Response:** FPR staff and not the tenants have maintained the trail at all levels for a number of years and will continue to do so.

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## **Appendix B:**

### **Ecological Assessment and Natural Community Description and Maps**

#### **A. Ecological Assessment**

The Agency of Natural Resources uses the “coarse filter/ fine filter” approach to the ecological inventory and assessment of state lands (Jenkins 1985; Noss 1987; Hunter et al. 1988; Hunter 1991; Noss and Cooperrider 1994; Haufler et al. 1996; Jenkins 1996; Poiani et al. 2000). Widely employed as a management tool on state, federal, and private lands (see for example: Leslie et al. 1996; Committee of Scientists 1999; Stein et al. 2000; USFS 2000, 2004), it is an aid to land managers who seek to protect most or all of the species that naturally occur on their lands, but who lack the resources to make exhaustive inventories of all taxonomic groups. Because many groups of organisms are cryptic or poorly understood (for example, fungi and soil invertebrates), it is not practical to make lists of all of them (Anderson et al. 1999; Willis and Whittaker 2002). Even if we could assemble such lists of species, it would be impossible to manage the land with all of them in mind. Instead, natural communities are treated as a proxy for the biological organisms of which they are composed. It is thought that if examples of all of Vermont’s natural communities are conserved at the scale at which they naturally occur, most of the species they contain, from the largest trees and mammals to the smallest insects, will also be conserved (NCASI 2004). Natural communities are thus a coarse filter for “catching” the majority of an area’s native organisms. Because conservation of habitats (in the form of natural communities) will not protect all species, we also employ a “fine filter” to catch the remaining species that are known to require very specific conditions for their growth, reproduction, wintering, etc. Examples of organisms benefiting from the fine filter inventories described below include breeding birds, deer on their wintering areas, and rare plants.

The coarse filter assessment begins by describing landscape and climatic factors that characterize the Brattleboro Management Unit, such as bedrock geology and water resources. It then details the 16 distinct natural community types documented and mapped during inventories of the BMU. This is followed by a fine filter assessment describing rare species, invasive plants, and wildlife habitats found here.

#### **B. Coarse Filter Assessment**

##### **Biophysical Region and Climate**

Vermont’s biological landscapes are divided into eight regions that share features of climate, topography, geology, human history, and natural communities. These regions are continuous in adjacent states, and are related to regional and national classifications of ecological systems in North America. The parcels of the BMU are located in two of Vermont’s biophysical regions, the southern Vermont Piedmont (Dutton Pines State Park, Fort Dummer State Park, and Sweet Pond State Park, and the southern green mountains. The southern Vermont Piedmont region includes much of Vermont’s Connecticut River valley as well as associated foothills to the west. This mostly forested region features productive soils and a relatively mild climate; it was thus historically an important agricultural area of the state, and many farms are still found there. The Connecticut and several large rivers run through the region. Bedrock is variable, but in

many areas, contributes to mineral rich soils. The valleys in the region feature many soils derived from deep accumulations of glacial outwash and glacial lake deposits (e.g., the soils at Dutton Pines State Park); glacial till soils predominate on the hills and mountains (e.g., the soils at Fort Dummer State Park and in the vicinity of Sweet Pond). The southern Vermont Piedmont region receives less rainfall than much of the rest of Vermont, and in some areas, particularly well drained south facing slopes, growing conditions can be very dry. The southern green mountains biophysical region is characterized by high mountain peaks and plateaus. The growing season is relatively short, winters are cold, and precipitation is abundant in all seasons. The bedrock includes some of the oldest rocks in the state, and is largely a metamorphosed schist that does not contribute greatly to enrichment of the soil. Soils are mainly derived from glacial tills. The natural communities found in this region tend to be shaped by these abiotic features, and are thus quite different from those found in the southern Vermont Piedmont.

### Bedrock and Surficial Geology and Soils

The geologic history of this area has much to do with the current distribution of natural communities in the BMU. The degree to which bedrock affects growing conditions at the BMU is mediated by the depth of the surficial materials deposited at the end of the last glaciation, some 15,000-12,000 years ago. As the glacier ice melted, rock fragments of all sizes, from boulders to clay, fell in an unsorted jumble known as glacial till, and most mountainous areas of the management unit feature a layer of this over the bedrock. Glacial till depths are usually less than about 40", but they may be deeper. The flatter areas closer to the Connecticut River were inundated by glacial Lake Hitchcock, which filled the river valley as the ice melted. Fast moving waters of the lake and associated river waters deposited deep piles of generally well-sorted sands, silts and gravels. These materials are usually very well drained, and set the stage for such drought-adapted natural communities as the white pine-red oak-black oak forest found at Dutton Pines State Park. There are areas of horizontally bedded gravels off the state land that facilitate great seasonal fluctuations in the water table. More recent deposits of muck and peat are found in many of the wetlands. These are organic materials deposited in very acidic environments that consequently decay more slowly than they are produced.

The soils of the BMU are primarily products of these surficial deposits, though they may also be influenced by bedrock weathering. Glacial till-derived soils are the most widely distributed; these are generally rocky silt loams of the Brayton, Dummerston, Fullam, Macomber, Taconic, Worden, Houghtonville, Rawsonville, and Hubbardton soil series. In most areas of the management unit these are only moderately productive soils. Soils formed on the glacial lake- and river-deposited sediments are Quonset and Warwick fine sandy loams and are greater than 5' in depth. Organic soils in the wetlands have been typed as Markey muck.

### Hydrology/Streams/Rivers/Ponds

Most of the BMU receives between 38 and 44" of precipitation annually, a relatively small amount compared to the rest of the state (Molly Stark State Park receives more than this). Dutton Pines and Fort Dummer State Parks are in the Connecticut River watershed; Sweet Pond State Park is in the Fall River watershed (which drains eventually to the Connecticut River); and Molly Stark State Park is in the Deerfield River watershed. There is one permanent water body in the BMU and many of the wetlands are seasonally inundated. While the flow of water plays a

critical role in the structuring of natural communities and habitats associated with swamps and seeps at the management unit, it is the lack of water that characterizes most of the acreage. Many of the forested natural communities described below are habitat for plants and animals that are adapted to droughty conditions.

### **Natural Communities**

A natural community is an assemblage of biological organisms, their physical environment (e.g., geology, hydrology, climate, natural disturbance regime, etc.), and the interactions between them (Thompson and Sorenson 2000). More than a simple collection of species, a natural community is characterized by complex webs of mutualism, predation, and other forms of interaction. The 80 natural community types described in Vermont repeat across the landscape in patches (or “polygons”) of various sizes. These patches (or groups of patches in close proximity to each other) are referred to as natural community *occurrences*, and are to be distinguished from broad descriptions of community types. Natural community occurrences vary greatly in their size. *Matrix* communities, such as hemlock-northern hardwood forests, occur in broad expanses across the landscape, and form the context in which other, smaller communities are found. *Large patch* communities, such as red oak-northern hardwood forest, typically occur at scales of 10-100 acres. *Small patch* communities such as seeps and vernal pools are usually less than 10 acres in size, and owe their existence to highly localized site and disturbance characteristics.

Natural communities at the BMU were identified through aerial photograph interpretation and field surveys. Field data were collected using a Trimble GeoXM global positioning system (G.P.S.) unit, clinometer, compass, binoculars, soil augur, Cornell pH kit, and a variety of reference manuals for identification of plants, animals, fungi, etc. Many plant specimens were collected for identification in the lab. A Geographic Information System (G.I.S.) map of natural communities was produced using ArcView software from ESRI, Inc. Because some natural communities occur at very small scales (e.g., less than ¼ acre), this mapping effort is probably incomplete. Natural community mapping is an iterative process, and our knowledge improves with each mapping effort. Thus, the map presented here should not be viewed as a final statement on community distribution at the BMU; instead, it should be treated as a first attempt at describing natural communities in this area. Land managers and members of the public should be aware that additional examples of small patch natural communities (e.g., vernal pools and seeps) probably occur on the management unit. As subsequent inventories and site visits are conducted, this map will be improved.

Natural community occurrences are assigned a quality rank, a statement of their overall ecological value which helps guide management. An “A”-ranked occurrence is of high quality relative to others of its type in the state, while a D-ranked example is of comparatively low quality. Quality ranks are assigned on the basis of three factors: occurrence size, current condition, and landscape context. The three factors vary in the degree to which they influence overall quality in different communities. For example, size and landscape quality are more important factors than current condition in the quality ranking of northern hardwood forests, while current condition and landscape context receive greater attention in the ranking of rich northern hardwood forests. It is important to recognize that assignment of low quality ranks may be due to small size rather than poor current condition. When community occurrences are either



rare or of high quality (or a combination of these factors), they may be designated as being of “statewide significance”. This designation is applied according to objective guidelines established by the Vermont Nongame and Natural Heritage Program, which are available upon request. It is recommended that state-significant natural communities be afforded a higher level of protection than other areas of the management unit.

Twenty occurrences of 16 natural community types were identified and mapped at the BMU (see table below). A total of 38 natural community polygons were mapped. Some broad patterns emerged from this mapping effort. Forested natural communities at lower elevations usually favor a strong component of eastern hemlock (*Tsuga canadensis*), a softwood that tolerates the dry ledge conditions in many parts of the management unit, as well as ‘central’ hardwoods such as oaks. Red spruce (*Picea rubens*) and northern hardwoods predominate at Molly Stark State Park. Many of the wetlands feature acidic substrates, and feature distinctive plant assemblages as a consequence.

The topography, soils, vegetation, and wildlife associations of each natural community at the BMU are described below.

Natural Communities of Brattleboro Management Unit					
Natural Community		Acres	Vermont Distribution	State Significant Example?	Parcel*
Wetlands	Alder Swamp	4	common		SP, FD
	Red Maple-Sphagnum Acid Basin Swamp	1	common		FD
	Sugar Maple-Ostrich Fern Riverine Floodplain Forest	12	uncommon		SP, FD
	Shallow Emergent Marsh	<1	very common		SP
	Sweetgale Shoreline Swamp	<1	uncommon		SP
	Seep	<1	very common		SP
	Vernal Pool	<1	common		FD
Uplands	Dry Oak Forest	40	rare	Yes	FD
	Hemlock Forest	160	very common		FD, SP
	Hemlock-Northern Hardwood Forest	116	very common		FD, SP
	Lowland Spruce-Fir Forest	78	uncommon		MS
	Mesic Red Oak-Northern Hardwood Forest	14	common		FD, MS
	Northern Hardwood Forest	89	very common		MS, SP
	Red Spruce-Northern Hardwood Forest	2	very common		MS
	White Pine-Red Oak-Black Oak Forest	12	rare		DP
For more information on these and other natural communities, see Wetland, Woodland, Wildland: a Guide to the Natural Communities of Vermont, by Elizabeth Thompson and Eric Sorenson. Information may also be found online at: <a href="http://www.vtfishandwildlife.com/books.cfm?libbase=Wetland,Woodland,Wildland">http://www.vtfishandwildlife.com/books.cfm?libbase=Wetland,Woodland,Wildland</a>					

\* DP = Dutton Pines State Park, FD = Fort Dummer State Park, MS = Molly Stark State Park, SP = Sweet Pond State Park.

Uncommon or rare, not state significant	State significant and rare
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### 1) Lowland Spruce-Fir Forest

Seventy-eight acres of this natural community were mapped at Molly Stark State Park. Soils here are mapped by the NRCS as fine sandy loam glacial tills of the Hogback, Houghtonville, and Rawsonville series. These are well drained, rocky glacial till-derived soils, usually between 10 and 60" in depth. Sampling in the field revealed a 2" layer of organic material on the surface, 2" of dark loam "A" layer, and beyond this, a deep "B" layer composed of fine sandy loam, with mottles at about 4". Tree canopy is at about 45', with 85-90% cover. Red Spruce (*Picea rubens*) is the dominant canopy tree; others include balsam fir (*Abies balsamea*), red maple (*Acer rubrum*), and black cherry (*Prunus serotina*). A variable, 3-8' tall shrub layer averages about 45% cover, and is dominated by balsam fir, red spruce, and red maple saplings, as well as striped maple (*Acer pensylvanicum*). A 1-3' short shrub layer covers about 25% of the ground, and is also dominated by balsam fir; other common species here are red maple, American beech (*Fagus grandifolia*), red spruce, and yellow birch (*Betula allegheniensis*). Herb cover is about 25%, and includes intermediate woodfern (*Dryopteris intermedia*), Canada mayflower (*Maianthemum canadense*), goldthread (*Coptis trifolia*), starflower (*Trientalis borealis*), Indian cucumber (*Medeola virginiana*), and several sedge species (*Carex*). Mosses are occasional, with 5-10% cover. Stone walls run through this community, attesting to the influence of land clearing and grazing on current vegetation. While the plant composition above is typical for successional lowland spruce-fir forests, the topography of the areas mapped suggests that some of it will mature into a red spruce-northern hardwood forest. The Mt. Olga trail passes through this community occurrence.

Issues/concerns: Where possible, forest management should seek to maintain the canopy composition and natural community type.

### 2) Red Spruce- Northern Hardwood Forest

Two acres of this matrix forming community were mapped at Molly Stark State Park. The forest is surrounded by the lowland spruce-fir forest described above, and is similar in soils, topography, and vegetation. In this community occurrence, hardwoods such as sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), and yellow birch (*Betula allegheniensis*) are more prominent in the canopy. This community may simply be an older version of the one described above; both need more study. This occurrence of red spruce-northern hardwood forest is very small relative to others in the region.

Issues/concerns: Where possible, forest management should seek to maintain the canopy composition and natural community type.

### 3) Northern Hardwood Forest

Two occurrences of this common forest type were mapped, one at Molly Stark State Park, the other at Sweet Pond State Park. The Molly Stark occurrence totals 78 acres, and has affinities with the northern hardwood forests found throughout northern Vermont. Soils include the rocky glacial tills found in the adjacent lowland spruce-fir forest, as well as Worden Loam, a deeper, less well drained glacial till soil. Tree canopy is at about 45-50', with 90% cover. An even-aged group of red oak (*Quercus rubra*) is the canopy dominant tree, and this appears to reflect a

successional stage when the ground here was open and sunny. Apparently younger tree species also common in the canopy include red maple (*Acer rubrum*), American beech (*Fagus americana*), red spruce (*Picea rubens*), and paper birch (*Betula papyrifera*). Sugar maple (*Acer saccharum*) was found only occasionally in the canopy. A 25' subcanopy features many of the same species. The 3-8' tall shrub layer has 30% cover and includes striped maple (*Acer pensylvanicum*), American beech, and red spruce. Short shrubs cover 10% of the ground and include striped maple, red spruce, and yellow birch. A 60% cover of herbs is dominated by Canada mayflower (*Maianthemum canadense*), intermediate woodfern (*Dryopteris intermedia*), mountain woodfern (*Dryopteris campyloptera*), hay-scented fern (*Dennstaedtia punctilobula*), Indian cucumber (*Medeola virginiana*), and wild sarsaparilla (*Aralia racemosa*). Less common herbs in this forest are white whorled aster (*Aster acuminatus*), three-seeded sedge (*Carex trisperma*), and Indian pipe (*Monotropa uniflora*).

Only 10 acres of northern hardwood forest were mapped at Sweet Pond State Park. This occurrence appears to be more vigorous, with a taller tree canopy and more abundant sugar maple. The occasional presence of eastern hemlock (*Tsuga canadense*) suggests a warmer, drier site than that occupied by this community at Molly Stark State Park.

Issues/concerns: Where possible, forest management should seek to maintain the canopy composition and natural community type.

#### 4) Hemlock Forest

This forested natural community is found at Fort Dummer and Sweet Pond State Parks, and totals about 160 acres in the BMU. The substrate in these forests is dry and acidic, with some areas of rocky, thin sandy soil, and others with deeper fine sand loams. The tree canopy is 50-65' tall, with more than 95% cover composed almost entirely of eastern Hemlock (*Tsuga canadense*). A few other trees may be found here also, including sweet birch (*Betula nigra*), red oak (*Quercus rubra*), and white ash (*Fraxinus americana*). Because of deep shading and also deer browsing, there is very little shrub or herb understory in these forests. Plants noted here include striped maple (*Acer pensylvanicum*), marginal woodfern (*Dryopteris marginalis*), Christmas fern (*Polystichum acrostichoides*), American pinesap (*Monotropa hypopithys*), and mullein (*Verbascum thlaspi*). As at other sites around the state, hemlock forest in the BMU intergrades with hemlock northern-hardwood forest.

Issues/concerns: Forest management should seek to maintain the canopy composition and forest type. Hemlock woolly adelgid is a threat to these forests, and should be looked for periodically at the BMU.

#### 5) Hemlock-Northern Hardwood Forest

Hemlock-Northern Hardwood Forest is found at Fort Dummer and Sweet Pond State Parks, and is often the 'matrix' into which other natural communities fit. The 116 acres of the community have been divided into two separate occurrences. The occurrence at Fort Dummer State Park typically features a 60-65' canopy dominated by eastern hemlock (*Tsuga canadensis*; the canopy of this forest is at least 90' tall at Sweet Pond State Park). Canopy closure averages about 90%, and trees other than hemlock may account for up to 30% of that cover. These trees

include red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), eastern white pine (*Pinus strobus*), red oak (*Quercus rubra*), sugar maple (*Acer saccharum*), and sweet birch (*Betula nigra*). Some areas feature a strong (70% cover), 40' tall subcanopy of eastern hemlock and American beech, indicating that these species will likely dominate the forest for some time to come. Tall shrubs typically have about 15% cover, and typically include eastern hemlock, American beech, and witch-hazel (*Hamamelis virginiana*). Striped maple (*Acer pensylvanicum*) is also present at some sites, and spice bush (*Lindera benzoin*), an uncommon plant in Vermont, was found in this forest at Fort Dummer. Short shrubs are usually sparse (10% cover); species observed include maple-leaved viburnum (*Viburnum acerifolium*), low bush blueberry (*Vaccinium angustifolium*), spicebush, poison ivy (*Toxicodendron radicans*), and striped maple. Herb cover is variable, averages about 10%, and includes partridgeberry (*Mitchella repens*), Canada mayflower (*Maianthemum canadense*), Indian cucumber (*Medeola virginiana*), false Solomon's seal (*Smilacina racemosa*), wild sarsaparilla (*Aralia nudicaulis*), white whorled aster (*Aster acuminatus*), false hellebore (*Epipactis helleborine*), northern green bog orchis (*Platanthera hyperborea*), marginal woodfern (*Dryopteris marginalis*), intermediate woodfern (*Dryopteris intermedia*), New York fern (*Thelypteris noveboracensis*), and several species of sedges (*Carex* species). Bryophytes are common, including a moss species of *Polytrichum*. Hemlock-northern hardwood forests are common on adjacent private lands, but the treatment here includes only the lands in public ownership. From an ecological standpoint, these occurrences are likely larger than what is reported here.

Issues/concerns: Forest management should seek to maintain the canopy composition and natural community type. Hemlock wooly adelgid is a threat to these forests, and should be looked for periodically at the BMU.

## 6) Mesic Red Oak-Northern Hardwood Forest

This forest type was mapped on 11 acres of Fort Dummer State Park; a two acre occurrence is also found near the summit of Mount Olga. Soils in the red oak-northern hardwood forests here tend to be very well drained, rocky glacial tills less than 40" in depth. This is a hardwood forest community where red oak (*Quercus rubra*) accounts for a significant portion of the canopy cover. Trees tend to be tall (60-65'), and canopy cover is about 75%. Other canopy species noted include red maple (*Acer rubrum*), white ash (*Fraxinus americana*), sweet birch (*Betula nigra*), black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), white oak (*Quercus alba*), white pine (*Pinus strobus*), and eastern hemlock (*Tsuga canadensis*). Red spruce (*Picea rubens*) is common in the Molly Stark occurrence. Regeneration of canopy trees varies greatly, with red oak saplings usually reaching the subcanopy only when seeded into a sunny gap. Consequently land use history may play an important role in the structuring of these forests. Tall shrubs are usually sparse, striped maple (*Acer pensylvanicum*) and beaked hazelnut (*Corylus cornuta*) being the most abundant. Short shrubs noted are lowbush blueberry (*Vaccinium* species) and maple-leaved viburnum (*Viburnum acerifolium*). Herbs are moderately sparse, and include bracken fern (*Pteridium aquilinum*), wild sarsaparilla (*Aralia nudicaulis*), Canada mayflower (*Maianthemum canadense*), arrowleaf violet (*Viola sagittata* var. *ovata*), wintergreen (*Gaultheria procumbens*), wild oats (*Uvularia sessilifolia*), saxifrage (*Saxifraga virginiana*), and gay wings (*Polygala pauciflora*). A new population of a rare plant, spotted wintergreen (*Chimaphila maculata*), was found in this community during inventory of Fort Dummer State Park.

The relationship of this community to hemlock-northern hardwood forests and dry oak forests at Fort Dummer State Park deserves more study. The red oak-northern hardwood forests here are in good condition, but are small relative to others in the state.

Issues/concerns: Forest management should seek to maintain the canopy composition and natural community type. Rare plants found in the adjacent dry oak forest may also occur here, so management activities should include further ecological assessment.

## 7) Dry Oak Forest

A 40 acre, high quality example of this uncommon forest type occurs on the east facing slopes of Fort Dummer State Park. The ground is steep (5-25°), and soils are rocky, droughty, and shallow (usually less than 40" in depth) glacial tills of the Dummerston, Macomber, and Taconic series. The organic layer is thin, and these soils are acidic. The 75% closed forest canopy is dominated by 45-60' hardwoods. The most common canopy tree species are red oak (*Quercus rubra*), black oak (*Quercus velutina*), sweet birch (*Betula nigra*), and white oak (*Quercus alba*); other tree species in the canopy include white ash (*Fraxinus americana*), eastern hemlock (*Tsuga canadensis*), and chinquapin oak (*Quercus muehlenbergii*), an uncommon species in Vermont. A 40' tall American chestnut (*Castanea dentata*) with no signs of disease was found in this community. The tall shrub layer has about 30% cover, and includes white oak, red maple (*Acer rubrum*), serviceberry (*Amelanchier* species), white pine (*Pinus strobus*), American beech (*Fagus grandifolia*), and flowering dogwood (*Cornus florida*), a rare plant listed as Threatened by Vermont's endangered species law (see Fine Filter section below for more information on this plant). Short shrubs are sparse; the most abundant are lowbush blueberry (*Vaccinium* species) and maple-leaved viburnum (*Viburnum acerifolium*). Relative to other occurrences of this community type, herbaceous cover is dense (about 50% cover); most common species are bracken fern (*Pteridium aquilinum*), wintergreen (*Gaultheria procumbens*), starflower (*Trientalis borealis*), Pennsylvania sedge (*Carex pensylvanica*), ricegrass (*Oryzopsis asperifolia*), hairgrass (*Deschampsia flexuosa*), and cow wheat (*Melampyrum pratense*). Several rare and uncommon herbs occur here, including downy false-foxglove (*Aureolaria virginica*; very rare; found in 1989 and not relocated since), spotted wintergreen (*Chimaphila maculata*; rare), wood lily (*Lilium philadelphicum*; uncommon), slender muhly (*Muhlenbergia tenuiflora*; uncommon), cypress witchgrass (*Panicum dichotomum*; uncommon), and poke milkweed (*Asclepius exaltata*; uncommon). An additional rare plant has been reported here, but its identification is not confirmed (see rare plant section, below).

A number of mycorrhizal mushroom species associated mainly with oaks were noted in this forest, as was the saprobe hen-of-the-woods (*Grifola frondosa*), an edible species that is apparently rare throughout much of northern Vermont.

This drought tolerant forest was probably the site of periodic fire in the past, as evidenced by several burnt tree stumps found in the inventory. The forest almost certainly contained more American chestnut before a fungal blight killed the tree throughout North America. As the site of a possible American military look-out, this forest has also seen some human disturbance over the last several centuries.

Issues/concerns: The dry oak forest at Fort Dummer State Park is one of the best known examples of this natural community in the state, and any management at the site should take into account the sensitive natural resources there. Forest management is probably not necessary to maintain this forest community, but monitoring should continue to determine whether burning, selective thinning, or other means are necessary to maintain its health. The rare plant populations documented for this site, particularly of flowering dogwood, should be monitored in the future.

#### 8) White Pine-Red Oak-Black Oak Forest

This pine-oak association is restricted in Vermont to areas of deep, well-drained sands. The entire 13- Dutton Pines State Park was mapped as this community type, based partly on existing vegetation and partly on fact that the parcel features a terrace of deep, coarse, extremely well drained sands of the Quonset and Warwick soil series. Both of these soils are flat or sloping, deep, excessively drained glacial outwash sands and gravels, and in Vermont they are not mapped separately. Quonset soils are described by the U.S.D.A. Natural Resource Conservation Service as being coarser and more excessively drained than Warwick; Quonset slopes range from 0-70%, while those of the Warwick series range from level to 45% slope (NRCS 2000). Soils of the prominent level terrace at the elevation of adjacent Route 5 were observed to be much drier than the gently sloping to level soils on the east side of the parcel and along Dummerston Station Road. The former are closer to the description of Quonset, the latter closer to Warwick.

The forest structure currently encountered at Dutton Pines is somewhat different from a healthy white pine-red oak-black oak forest due to a long history of management and use by people. A (super) canopy of tall (85-95') white pines (*Pinus strobus*) dominate many areas of the parcel, especially the level terrace described above. A few scattered red oak (*Quercus rubra*) and sugar maple (*Acer saccharum*) also reach these heights. Red oak is common in the 60-70' main tree canopy; other common trees are American beech (*Fagus grandifolia*), sugar maple, red maple (*Acer rubrum*), eastern hemlock (*Tsuga canadensis*), red pine (*Pinus resinosa*), and white oak (*Quercus alba*). Black oak (*Quercus velutina*) may be present. This main canopy averages 65% cover. A variable (50-85% cover) subcanopy at 20-30' features American beech, red oak, eastern hemlock, sweet birch (*Betula nigra*), and bitternut hickory (*Carya cordiformis*). The tall shrub layer has 15% cover; the most common member of this stratum is glossy false buckthorn (*Frangula alnus*), an invasive exotic plant. Other tall shrubs include witch hazel (*Hamamelis virginiana*) and advanced regeneration of many of the above-mentioned tree species. A 20-30% ground cover of short shrubs consists mainly of lowbush blueberry (*Vaccinium angustifolium*); maple-leaved viburnum (*Viburnum acerifolium*), red oak, white oak, and American beech are also present. Herb cover also depends on light penetration through the various tree strata; common herbs are Canada mayflower (*Maianthemum canadense*), partridge berry (*Mitchella repens*), bristly dewberry (*Rubus hispidus*), poverty grass (*Danthonia spicata*), hair grass (*Deschampsia flexuosa*), periwinkle (*Vinca minor*), intermediate woodfern (*Dryopteris intermedia*), interrupted fern (*Osmunda claytoniana*), and various sedges (*Carex* species). Large old grape vines (*Vitis* species) are a prominent feature of the more mesic forest areas. Drought tolerant lichens and mosses are common.

White pine-red oak-black oak forest is a rare natural community in Vermont, due both to its restriction to sandy terrace landscapes and the value of those lands for agriculture and timber harvest. Dutton Pines was also the site of a Civilian Conservation Corps development project, the



sheltered picnic area being one remnant of that time. This forest type was probably disturbed historically by periodic fires, which would encourage its most common tree species. In the absence of such gap-producing disturbance, hemlock and beech will become much more dominant trees here over time.

Issues/concerns: If possible, this area should be managed to perpetuate the forest type. The forest will slowly transition to a hemlock stand without natural or other disturbances. Management activities that would probably be ecologically appropriate include controlled burning and removal of selected trees that compete with the canopy dominants of this community type.

#### 9) Sugar Maple-Ostrich Fern Riverine Floodplain Forest

A 1.5 acre forested wetland along the western margin of Sweet Pond State Park was identified as this community type. Although this wetland is different from typical examples of this community, no other currently described natural community better describes the vegetation of the site. Soil here is mapped as Markey muck, a deep, very poorly drained soil composed of mucky organic and mineral material. In the field, the soil was observed to contain alluvial mineral soil, likely deposited by seasonal flooding.

Sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) are common in the 80-90' tall canopy; cover is about 60%. These trees are also scattered in a lower subcanopy layer. Tall shrubs present are striped maple (*Acer pensylvanicum*) and American beech. Short shrubs are largely absent. Common herbs are Cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), interrupted fern (*Osmunda claytoniana*), sensitive fern (*Onoclea sensibilis*), spotted jewelweed (*Impatiens capensis*), Jack-in-the-pulpit (*Arisaema triphyllum*), and hog-peanut (*Amphicarpaea bracteata*).

The 10 acre riparian forest along Broad Brook at the south end of Fort Dummer State Park also has affinities with this wetland forest type, and also does not fit its 'classical' description very well. This forest has been impacted by road construction, some degree of excavation, and likely by timber harvest; it needs more study.

Issues/concerns: While not well understood, both of these forests will benefit from standard wetland buffering guidelines.

#### 10) Red Maple-Sphagnum Acidic Basin Swamp

This is a common swamp type in Vermont. Described as "red maple-black ash swamp" by Thompson and Sorenson (1999), a more refined ecological community classification (Sorenson 2004) now distinguishes this community from other red maple-dominated swamps found in the Champlain Valley. One sinuous, 1.2 acre example of this swamp types is associated with a sluggish streambed at Fort Dummer State Park. These are typically acidic swamps with peaty or mucky soils and usually some degree of groundwater seepage. They are stressful places for plants to grow, but can nonetheless be rich in species. The tree canopy is 45' tall, with about 70% ground coverage. Most common species are red maple (*Acer rubrum*), yellow birch (*Betula allegheniensis*), and eastern hemlock (*Tsuga canadense*). Sassafras (*Sassafras albidum*), a rare tree in Vermont, was found along the margin of this swamp, and nowhere else in the BMU. The

tall shrub layer is fairly dense (average of 55% cover), and includes speckled alder (*Alnus rugosa*), winterberry (*Ilex verticillata*), eastern hemlock, red maple, muscle wood (*Carpinus caroliniana*), and the uncommon shrubs mountain laurel (*Kalmia latifolia*), and spicebush (*Lindera benzoin*). A very rare shrub, smooth winterberry holly (*Ilex laevigata*), has been reported for this site. Because the plant is easily confused with winterberry, also here, the identification of this rare species here is still in question (see rare plant section below). The short shrub layer is sparse (10% cover), including smaller red maple, alders, and winterberry, as well as poison ivy (*Toxicodendron radicans*). Herbs have 85-95% cover by mid-summer, and include cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), crested fern (*Dryopteris cristata*), American pennywort (*Hydrocotyle americana*), bristly dewberry (*Rubus hispidus*), marsh skullcap (*Scutellaria parviflora*), Jack-in-the-pulpit (*Arisaema triphyllum*), and marsh bedstraw (*Galium palustre*). The uncommon stout wood reed (*Cinna arundinacea*) was found in this swamp.

Red maple swamps are important habitat from a wide variety of amphibians, mammals, birds, and other wildlife.

Issues/concerns: Any timber or trail management should seek to maintain the ecological integrity of this swamp, and its rare and uncommon plants should be monitored. A no-cut forest buffer should be maintained during timber harvest. The possibility that smooth winterberry holly occurs here should be investigated.

#### 11) Sweetgale Shoreline Swamp

A narrow band of the shrub swamp community was identified along the western margin of Sweet Pond. This is a floating mat of boggy vegetation dominated by sweet gale (*Myrica gale*), leatherleaf (*Chamaedaphne calyculata*), highbush blueberry (*Vaccinium corymbosum*), meadowsweet (*Spiraea latifolia*), winterberry (*Ilex verticillata*), and arrowwood (*Viburnum dentatum*). Herbs noted include royal fern (*Osmunda regalis*), marsh fern (*Thelypteris palustris*), turtlehead (*Chelone glabra*), spotted jewelweed (*Impatiens capensis*), *Carex lasiocarpa*, three-way sedge (*Dulichium arundinaceum*), round-leaved sundew (*Drosera rotundifolia*), bugleweed (*Lycopus uniflora*), cinnamon fern (*Osmunda cinnamomea*), and water parsnip (*Sium suave*). Peat mosses (*Sphagnum* species) are common in the ‘understory’ of this shrub swamp.

As ecotones between upland and open water, shoreline swamps are important habitat for many species of wildlife. Spotted turtle (*Clemmys guttata*), a rare species in Vermont, has been reported for this pond. Inventory for this plan failed to document this turtle, but others, including painted turtle, are common. Otter and beaver sign is abundant at the north end of the pond.

Issues/concerns: Any timber or trail management should seek to maintain the ecological integrity of this swamp and the pond it surrounds.

#### 12) Alder Swamp

A half-acre occurrence of this shrub swamp type is found at the north end of Sweet Pond. A second occurrence about three acres in size is found at Fort Dummer State Park. The Sweet Pond example has been altered by beavers, and the hiking trail currently passes through it on a boardwalk. The example at Fort Dummer probably has a long history of human disturbance, as it

is in the vicinity of stone walls, power lines, the Interstate, and farm buildings. Both examples experience seasonal flooding, and standing water is common. Soils are a mix of mucky organic material and sandy and gravelly alluvium brought by rushing waters from areas of upland soil nearby.

These swamps are dominated by speckled alder (*Alnus incana*), winterberry (*Ilex verticillata*), high bush blueberry (*Vaccinium corymbosum*), and arrow-wood (*Viburnum dentatum*). Glossy false buckthorn (*Frangula alnus*), an invasive shrub, is also common. Shorter shrubs include meadowsweet (*Spiraea latifolia*), roses (*Rosa* species), sweetgale (*Myrica gale*), red maple (*Acer rubrum*), and leatherleaf (*Chamaedaphne calyculata*). Bluejoint (*Calamagrostis canadensis*), three-way sedge (*Dulichium arundinaceum*), turtlehead (*Chelone glabra*), blue flag iris (*Iris versicolor*), fowl manna grass (*Glyceria canadensis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmia regalis*), *Carex stipata*, *Carex crinite*, and several other sedges (*Carex* species).

Issues/concerns: Any timber or trail management should seek to maintain the ecological integrity of this swamp.

### 13) Shallow Emergent Marsh

Two acres of this herb-dominated marsh were mapped at Sweet Pond State Park, one associated with beaver activity around the pond, the other with the floodplain forest on the western margin. Vegetation is similar to that of the alder swamp described above, but shrub cover is low, and herb cover is higher. The composition of this natural community will fluctuate with changes in hydrology made by beavers.

Issues/concerns: Beavers should be allowed to persist at this site.

### 14) Seep

One forested seep was identified at the northern end of Sweet Pond, and others may occur here or on the other parcels in the management unit. These are forested areas where groundwater seepage creates a permanent source of water and thus favorable conditions for wetland vegetation. Soils are usually mucky, and formed on top of the drier soils of the area. Cover from the adjacent forest is about 75%, and tall shrub cover is negligible. (The invasive glossy false buckthorn—*Frangula alnus*—is present here, however.) One short shrub, northern poison oak (*Toxicodendron rydbergii*), is common in this seep. Herb cover is uncharacteristically low (25-30%), and much open muck is visible. Common plants are spotted jewelweed (*Impatiens capensis*), New York fern (*Thelypteris noveboracensis*), dandelion (*Taraxacum officinale*), lady fern (*Dryopteris filix-femina*), Christmas fern (*Polystichum acrostichoides*), and sedges (*Carex* species).

Seeps are important habitat for many species of wildlife, ranging from large mammals to amphibians and invertebrates.

Issues/concerns: Protect seep from disturbance during timber harvest by establishing an undisturbed buffer strip. Monitor for effects from use of nearby trail.

## 15) Vernal Pool

Two vernal pools were mapped near the northeast corner of Fort Dummer State Park. These seasonally inundated woodland pools are critical wildlife habitat, functioning as breeding habitat for pool-specialist invertebrates and amphibians as well as seasonal feeding sites for many other species of wildlife. Taken together, the two pools cover about .2 acre. Soils in the pools are poorly drained, and there is no obvious drainage for them. A layer of decomposing leaf litter 1-2" deep sits on top of a saturated, poorly decomposed muck. Very little vegetation is found in the pool area. The surrounding hemlock forest provides shade (70% or more), and is described above. Plants found around the margin of the pools include witch hazel (*Hamamelis virginiana*), New York fern (*Thelypteris noveboracensis*), Canada mayflower (*Maianthemum canadense*), wild sarsaparilla (*Aralia nudicaulis*), and starflower (*Trientalis borealis*). A single black gum (*Nyssa sylvatica*) grows at the margin of one of the pools. This is a rare species in Vermont, and is found primarily in the southeastern corner of the state.

Detailed amphibian breeding surveys were not conducted, but wood frogs were noted during one visit.

Issues/concerns: These pools should be buffered from effects of any management activities. The black gum should be monitored for persistence at the site.

### **C. Fine Filter Assessment**

#### **Rare, Threatened, and Endangered Species**

The lands of the Brattleboro Management Unit at Fort Dummer State Park are home to a number of rare, threatened, and endangered species of plants. The species and their management needs are summarized below.

#### **Plants**

At least 12 species of rare or uncommon plants have been documented at Fort Dummer State Park. One of these—flowering dogwood (*Cornus florida*)—is listed as “threatened” by Vermont state endangered species statute (10 V.S.A. 123). Its occurrence at the BMU is thus very important on a statewide basis. Flowering dogwood was first reported from Fort Dummer State Park in 1989. A 1993 survey reported that most or all individuals in the population were heavily infested with a species of anthracnose (*Discula destructiva*), a fungal pathogen of many plants in the genus *Cornus*. A number of subsequent inventory efforts, including those for this plan, failed to find the plants. Flowering dogwood may thus be extirpated from the park, but a thorough survey is still needed to establish this.

The same surveyor (Elizabeth Thompson) who first reported flowering dogwood also reported a number of other rare plants, including downy false-foxglove (*Aureolaria virginica*). This plant has also not been seen at the site since 1989. Two other plants reported by Thompson are not treated in depth here because there were questions about taxonomy and/or plant identification at the time. These are hay sedge (*Carex argyrantha*; rare in Vermont, and reported for the dry oak forest here) and smooth winterberry holly (*Ilex laevigata*; very rare in Vermont, with only one documented station in Vernon at the Roaring Brook Wildlife Management Area; it

was reported for the red maple swamp described above). These plants were not found during inventories for this plan, but warrant further attention. Any management activities at Fort Dummer State Park should be reviewed for possible impacts to these and other rare plants.

<b>Rare, Uncommon, and Threatened Plants of Brattleboro Management Unit (Fort Dummer State Park)</b>					
<b>Species Name</b>	<b>Common Name</b>	<b>Sites Where Found</b>	<b>State Rarity Rank</b>	<b>Rarity*</b>	<b>Legal Status</b>
<i>Asclepius exaltata</i>	Poke milkweed	Dry oak forest	S3	Uncommon	
<i>Aureolaria virginica</i>	Downy false-foxglove	Dry oak forest	S1	Very rare	
<i>Chimaphila maculata</i>	Spotted wintergreen	Dry oak and hemlock forests	S2	Rare	
<i>Cinna arundinacea</i>	Stout wood reed	Red maple swamps	S3	Uncommon	
<i>Cornus florida</i>	Flowering dogwood	Dry oak forest	S2	Rare	threatened
<i>Kalmia angustifolia</i>	Mountain laurel	Margins of acidic wetlands	S3	Uncommon	
<i>Lilium philadelphicum</i>	Wood lily	Dry oak forest	S3	Uncommon	
<i>Lindera benzoin</i>	Spicebush	Dry woods, swamp margins	S3	Uncommon	
<i>Muhlenbergia tenuiflora</i>	Slender muhly	Dry oak forest	S3	Uncommon	
<i>Nyssa sylvatica</i>	Black gum	Vernal pools	S2	Rare	
<i>Quercus muehlenbergii</i>	Chinquapin Oak	Dry oak forest	S3	Uncommon	
<i>Panicum dichotomum</i>	Cypress witchgrass	Dry oak forest	S3	Uncommon	
*for an explanation of these rarity ranks, visit the Vermont Nongame and Natural Heritage Program's website: <a href="http://www.vtfishandwildlife.com/wildlife_nongame.cfm">http://www.vtfishandwildlife.com/wildlife_nongame.cfm</a>					

### Non-Native Species

A number of non-native plant species were found at the BMU. Most are not a threat to native vegetation, habitats, or wildlife; however, there are a few notable exceptions. Glossy false buckthorn (*Frangula alnus*) was found in natural situations and in disturbed areas at Fort Dummer, Dutton Pines, and Sweet Pond State Parks. Oriental bittersweet (*Celastrus orbiculata*) and Japanese barberry (*Berberis thunbergii*) were both found growing around the margins of the ball field at Fort Dummer State Park, as well as at Sweet Pond State Park. Timber harvest and other canopy gap-producing activities allow these aggressive shrubs to spread to the interior of forests. Consequently, forest management activities need to address means of controlling the plants.

Purple loosestrife (*Lythrum salicaria*) is established at the south end of Sweet Pond. This troublesome weed may be spreading to some of the wetlands described above, and control measures should be considered.

Hemlock wooly adelgid is a non-native species that is decimating eastern hemlock in other parts of the northeast, and has recently turned up in Vermont, with one population as close as Brattleboro. The animal has not been found on hemlock trees at the management unit, but it should be monitored for. A serious infestation of the adelgid could alter many of the natural resource values described above.

### Core Forest

Core forest is a concept used to describe the interior, undisturbed forest habitats and natural communities required by many species of animals and plants (e.g., many species of migrant songbirds, a variety of insects, small mammals such as fisher cat, and some larger predators) for some or all of their life cycles. The edge between forest and openings is detrimental to many of the same species, so fragmentation of blocks of core forest can result in a significant increase in poor forest habitat for those organisms. For mapping purposes, core forest has been defined as forested areas more than 100 meters away from canopy openings, whether they are hay fields, residential areas, roads, or open wetlands. Southeastern Vermont has a high density of roads and a significant amount of dispersed residential development; core forest block size is consequently low, and fragmentation relatively high. Fort Dummer State Park, Sweet Pond State Park, and Molly Stark State Park all contribute to the acreage of core forests, and are thus important sources of habitat for interior forest species.

The values of core forest should not be read to imply that other forests, including forest edges and younger forests, are not valuable habitat for wildlife. For example, Dutton Pines State Park is too small to function as significant core forest habitat, but it does support a wide variety of birds, mammals, and other organisms.

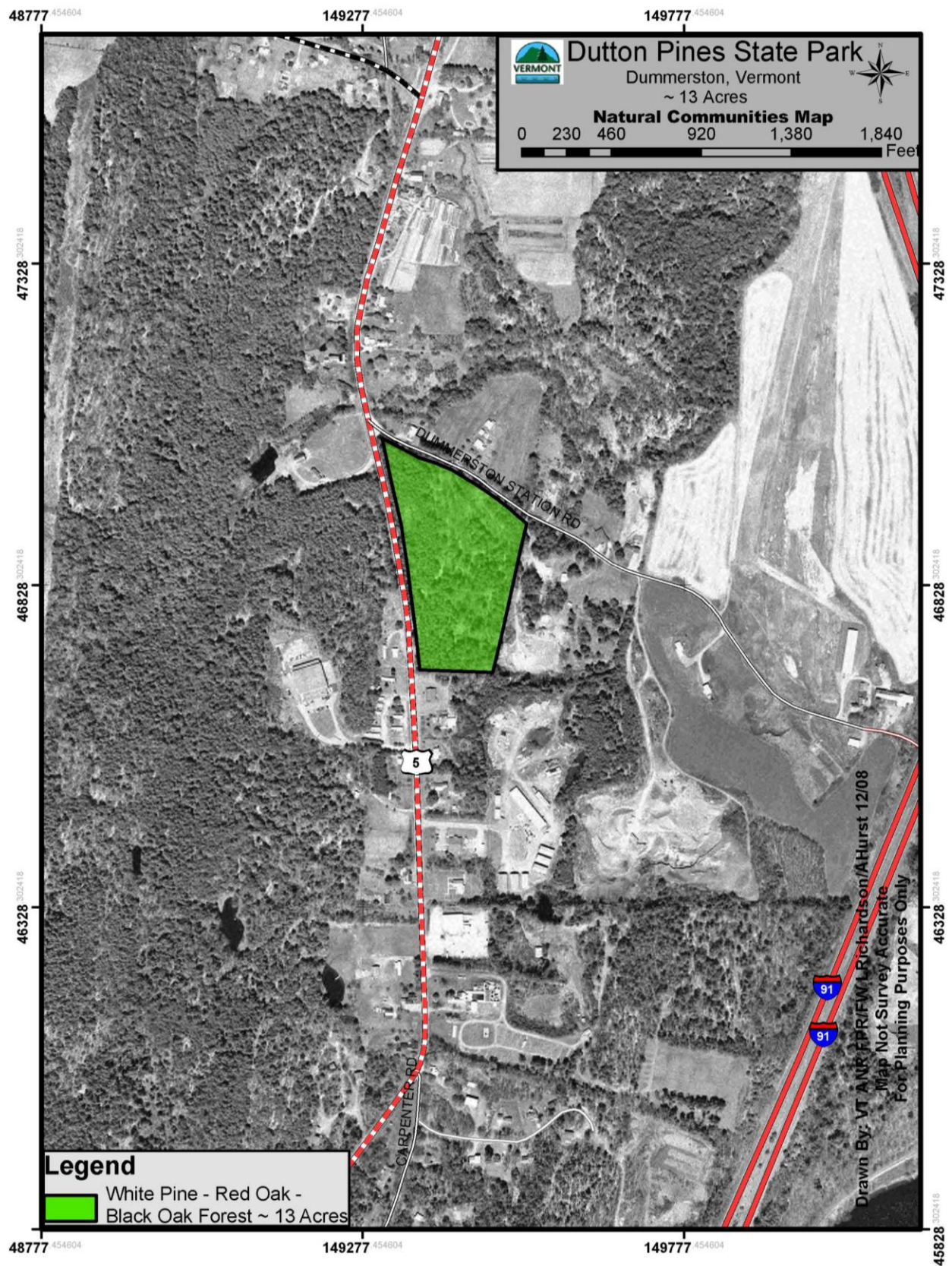
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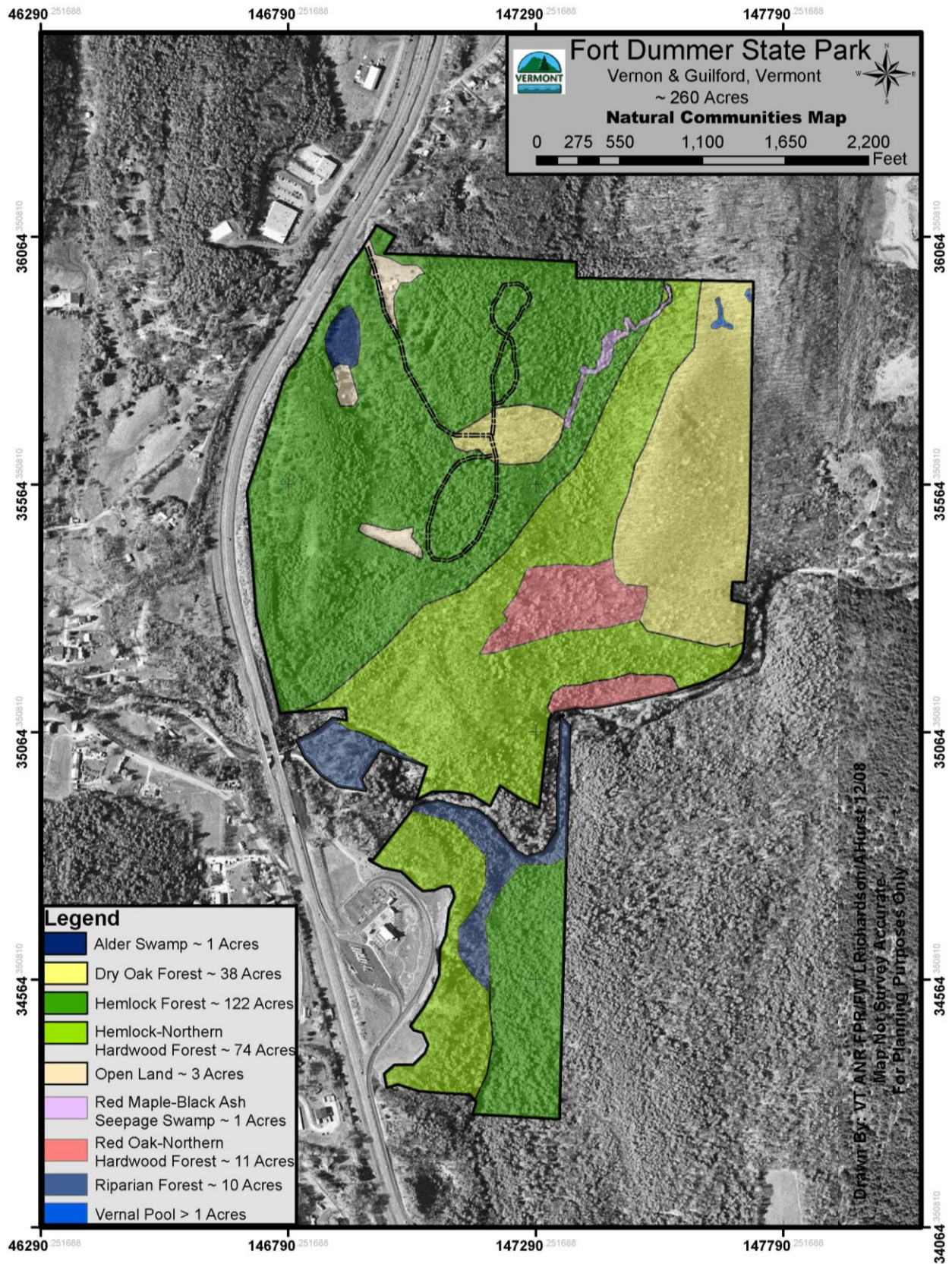


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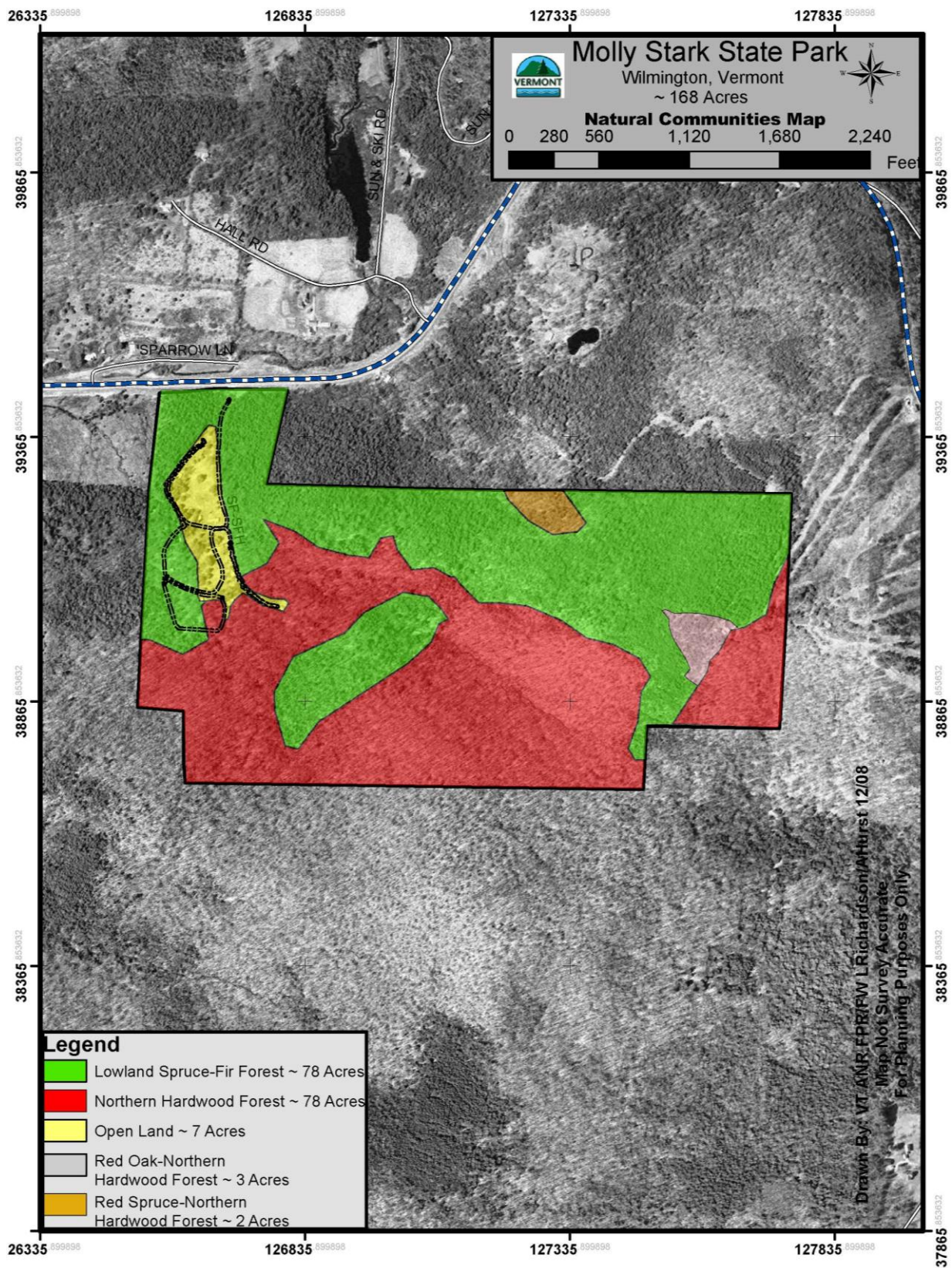
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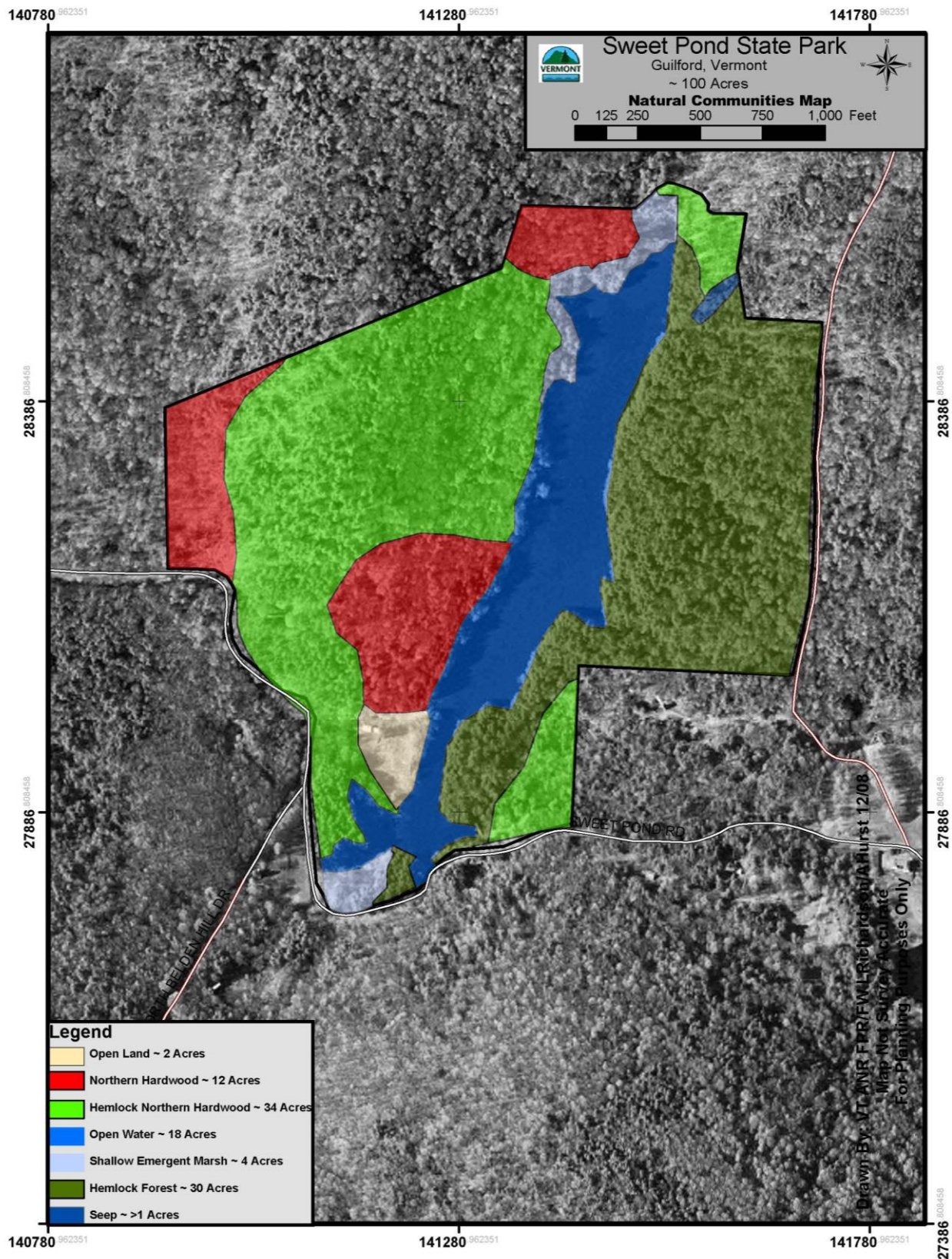














## **Appendix C:**

### **Special Constraints and Title History for the Brattleboro Management Unit**

Lands comprising all properties in the Brattleboro Management Unit are owned in fee simple by the State of Vermont.

There are a few legal constraints on the properties in the Brattleboro Management Unit. Most of those are in the form of utility line right-of-way leases and a mountaintop communications facility.

#### **Summary of Major Legal Constraints:**

##### **1. Dutton Pines State Park**

- a. An agreement dated May 12, 1953 between Edward Simeon and Charles E. Simeon and the State of Vermont states that each party agrees to maintain 413.5 feet of four-strand barbed wire fence along the park's eastern boundary. This agreement is no longer valid because the Simeons no longer own the adjacent property and no animals are grazed there.
- b. A quit claim deed granted to the Housing Foundation, Inc. for 125 foot-radius buffers around four water wells, associated infrastructure (a building, power and water lines) and road access to the facilities.
- c. Land and Water Conservation Fund(LWCF) restrictions **do not** apply to DPSP

##### **2. Fort Dummer State Park**

- a. Central Vermont Public Service Corporation holds a License agreement to maintain three 30-foot wide utility line rights-of-way across a portion of the property. Recorded in License #061-00-LC-91, expired 8/31/2010.
- b. Water and spring rights on adjoining property were included in a transaction from Karolina Lesenski to Merle and Mary P. Davis in 1945. Both parcels are now part of Fort Dummer State Park.
- c. A right-of-way for access purposes was granted to Henry and Edmae Martel in a transaction from Henry E. Northrup to Henry and Edmae Martel in 1952 to access their lands in Brattleboro. This right-of-way has no practical purposes as the lands have other accesses now.
- d. A right-of-way for access purposes was retained by Samuel Sikes in a transaction from Samuel Sikes to Elisha Field dated April 15, 1834. Both parcels are owned by the State of Vermont and the right-of-way no longer applies.
- e. A 999-year lease on the slate quarry was granted to John Holbrook and David Porter, d/b/a Holbrook and Porter by Anthony Jones on October 26, 1810. Later that day, the lease was re-assigned to Peter Willard and Thomas Clark. There is no mention of the lease again until a deed in 1900 references all rights granted to "Willard and Pierce". There is no mention of the slate quarry lease again.
- f. Agreement between AOT, ANR, and the Town of Brattleboro for placement, use, and maintenance of an underground sewer line from the Guilford Welcome Center.
- g. LWCF restrictions apply.

### **3. Fort Dummer State Park Annex (41.34 acres)**

- a. As transferred to Agency of Natural Resources (ANR) by Agency of Transportation (AOT) by Executive Order 6-27-02 as mitigation for deer wintering area lost to development of I-91 Welcome Center.
- b. In accordance with ANR/AOT Memorandum of Agreement dated 4/4/95.
- c. Designates 25.23 acres as deer wintering habitat and 16.11 acres as “forested habitat buffer zone” as depicted on a survey dated May 1 and titled “State of Vermont, AOT, Wildlife Habitat and Guilford Welcome Center.”
- d. AOT reserves right to maintain or replace fencing and drainage structures.
- e. LWCF restrictions apply based on LWCF funded development projects within the park.

### **4. Molly Stark State Park**

- a. New England Power Company entered into a Lease Agreement with the State of Vermont on March 28, 1968 for a 900 square foot plot at the summit of Mount Olga and 20-foot utility line right-of-way to construct a communications tower and support structure. The utility line right-of-way may be used for vehicle traffic if the lessee so desires. This lease is for an initial 10-year term with four subsequent 10-year renewal terms. The lease is currently in its 4<sup>th</sup> renewal stage and will presumably permanently expire on March 27, 2018. Distribution assets of New England Power Company were acquired by National Grid in 1998, and that company now holds the lease.
- b. LWCF restrictions apply based on LWCF funded development projects within the park.

### **5. Sweet Pond State Park**

- a. Central Vermont Public Service Corporation holds a License agreement to maintain a 30-foot wide utility line right-of-way across a portion of the property. Recorded in License #091-00-LC-91, expiring 8/31/2010.
- b. The purchase of Sweet Pond State Park was funded in part with funds from the National Park Service-administered Land and Water Conservation Fund. The Department of Forests, Parks and Recreation agrees by accepting these federal funds, to maintain the property for public outdoor recreation. This is done through a process known as a “Section 6(f)(3) Encumbrance.”

Those legal constraints that pose management issues to the Department are:

**Fort Dummer State Park** – The 999-year lease on the slate quarry is of concern because of the potential for a current leaseholder to assert their claim to the quarry. This is very unlikely, however possible. Finding the corporation or person(s) that currently hold the lease rights will be extremely difficult, and perhaps impossible. The Department’s legal counsel will be sought on how to proceed with this situation. If an entity should exercise their rights to the quarry, it could potentially destroy all public value of the developed recreation area.

**Molly Stark State Park** – The long-term lease of a small portion of the Mt. Olga summit for a communications site has some impacts on the long-term management of the property. The lease holders have a right to use the utility line right-of-way for vehicle travel, and although they currently do not do this, they could in the future if the preferred route over adjacent lands is cut off. The lease will be expiring for its final term during the life of this management plan; when it comes time to renegotiate the terms of the arrangement, a more careful review of fees assessed should be conducted. The lease site is not part of the designated “mountaintop communications” approved sites.

## Special Constraints and Title History for the Brattleboro Management Unit

This appendix is organized by land holding.

### ***Fort Dummer State Park***

Lands comprising the main block of Fort Dummer State Park were acquired by the Vermont Agency of Natural Resources in six parcels.

#### **Parcel 1**

Located in the town of Guilford. 86.8 acres. This parcel was transferred by Executive Order from the Vermont State Highway Board to the Department of Forests and Parks on December 28, 1962 by Governor Ray Keyser, Jr.

This parcel was acquired in three transactions by the Highway Board:

Ernest G. and Dorothie M. Kinsman to Vermont State Highway Board via warranty deed July 26, 1957. Recorded in Book 33, Page 479 Town of Guilford records. See (I) below for chain of ownership.

Town of Guilford to Vermont State Highway Board via warranty deed July 3, 1959 via warranty deed. Recorded in Book 36, Page 146 Town of Guilford land records.

Henry and Edmae M. Martel to Vermont State Highway Board via warranty deed September 10, 1958 via warranty deed. Recorded in Book 35, Page 60, Town of Guilford land records.

*I: 20 acres, +/-*

Merle and Mary P. Davis to E.G. and D.M. Kinsman, warranty deed, 5/27/1955.  
Book 33, Page 159.

Karolina Lesenski to Merle and Mary P. Davis, warranty deed, 10/10/1945.  
Book 30, Page 245. Includes water and spring rights from Wm. McConnell, dated 9/5/1912.  
Book 23, Page 365.

Charles and Evelyn Johnson to Karolina Lesenski, warranty deed, 7/6/1925.  
Book 25, Page 157.

Jason E. Bushnell to Charles and Evelyn Johnson, warranty deed, 1/9/1921.  
Book 25, Page 376.

Felix Martel and Rose M. Martel to J.E. Bushnell, quit claim deed, 4/23/1920.  
Book 24, Page 188.

Walter L. Harris to Felix Martel, warranty deed, 9/5/1916.  
Book 24, Page 285.

Edward Bushnell to Walter L. Harris, 9/5/1912.  
Book 23, Page 365 and Page 284, deed recorded Book 24, Page 68.

Clifton F. Haynes to Edward Bushnell, quit claim deed, 12/5/1910.  
Book 23, Page 363.

*II: 64 acres +/-*

Henry and Edmae Martel to Town of Guilford, warranty deed, 3/15/1959.  
Book 35, Page 101.

Henry E. Northrup to Henry and Edmae Martel, warranty deed, 11/8/1952.  
Book 32, Page 453. This includes the right-of-way for the Martels for access.

Nancy McConnell to Henry E. Northrup, warranty deed, 7/24/1936.  
Book 27, Page 109.  
“Subject to whatever sole and...rights that may now exist.”

Edward Bushnell to Nancy and William McConnell, warranty deed, 10/10/1900.  
Book 21, Page 117.  
“...with buildings thereon receiving any privileges of Willard and Pierce by lease of slate quarry and also right-of-way for teams, horses, and cattle as by Samuel Sikes deed to Elisha Field.”  
(Book 11, Page 358, recorded 4/15/1834)

Jason E. Bushnell and Alfred N. Bushnell to Edward Bushnell, warranty deed, 11/9/1895.  
Book 20, Page 126.

Mary Thompson to Jason Bushnell, warranty deed, 10/8/1883.  
Book 19, Page 49.

Lucier S. Streeter and wife Harriet Streeter to Jason E. Bushnell, warranty deed, 9/29/1883.  
Book 19, Page 45.

William Boyden to Frederick Thompson, warranty deed, date unclear.  
Book 17, Page 26.

Samuel Sikes to Elisha Field, warranty deed, 4/15/1834.  
Book 11, Page 358.

Martin L. Sikes to Samuel Sikes, quit claim deed, 4/7/1834.  
Book 11, Page 357.

Holbrook & Porter to Peter Willard and Thomas Clark, lease of quarry, 10/26/1810.  
Book 7, Page 41.

Anthony Jones and Anthony Jones Farm to John Holbrook and David Porter, d/b/a Holbrook and Porter, lease of slate quarry for 999 years, 1/26/1810.  
Book 7, Page 40.

Abanther Joy and Lewis Joy to Anthony Jones, 3/31/1808.  
Book 6, Page 190.

*III: refer to Northrup to Martel. Likely properties were combined to make one lot.*

## **Parcel 2**

Located in the Town of Guilford. 24.23 acres. This parcel was transferred by Executive Order #9 from Vermont State Highway Board to the Department of Forests and Parks on June 20, 1969 by Governor Deane C. Davis. Recorded in Book 40, Page 497 in Town of Guilford land records.

This consists of two transactions:

Acquired from Norris W. and Annis Drury via Judgment Order, Windham County Court, Docket No. 8868 on February 12, 1957 for the purposes of constructing Interstate 91. Recorded in Book 33, Page 417 Town of Guilford land records on April 30, 1957.

State of Vermont from Mildred L. Hoffman, via quit claim deed, July 8, 1960. 0.6 acre. Part of the lands previously described as being taken from Drury via Judgment Order, Windham County Court, Docket No. 8868.

## **Parcel 3**

Located in the Town of Guilford. 60 acres. This parcel was purchased from Annis Drury, wife of the late Norris W. Drury, by the State of Vermont on September 22, 1964.

A.G. Gallup et al. to N.W. and A.H. Drury, warranty deed, 9/22/1934.  
Book 27, Page 49.

Julia A. Squiers and Edward P. Squiers Estate to A.G. Gallup and C. Squiers, warranty deed, 6/22/1929.  
Book 26, Page 427.

Walter L. Boyden to Edward P. Squiers, warranty deed, 2/5/1898.  
Book 21, Page 8.

Levi Boyden to Walter L. Boyden, recorded in will as “home farm,” 8/16/1875.  
Will recorded in Book 21, Page 468, however no deed recording the transfer was found.

## **Parcel 4**

Town of Guilford. 41.34 acres. This parcel was transferred from the Agency of Transportation to the Agency of Natural Resources by Executive Order #06-02 on June 27, 2002 by Governor Howard Dean, M.D. This parcel was acquired by AOT for constructing the Vermont Welcome

Center; the parcel transferred to ANR was designated as wildlife habitat. Recorded in Book 102, Page 84 Town of Guilford land records.

This parcel was acquired by AOT from Victoria George, March 13, 1996 via warranty deed. Recorded in Book 87, Page 17, Town of Guilford land records.

#### **Parcel 5**

Town of Vernon. 60 acres. Henry Martel, Edmae M. Martel, Ernest R. Martel and Ethel R. Martel to State of Vermont warranty deed June 18, 1964.  
Book 27, Page 49.

Marion W. Towner to Henry and Edmae Martel, warranty deed, 8/5/1954.  
Book 26, Page 88.

Norman W. Towner to Marion W. Towner, warranty deed, 7/24/54.  
Book 26, Page 86.

Costella Gale Washburn to Norman W. Towner, warranty deed, 8/1/1946.  
Book 25, Page 132.

A title search was completed by Robert Grussing, III, Esq. in 1964 when this parcel was purchased. The search went back as far as 1875 and found no issues.

#### **Parcel 6**

Town of Brattleboro. 0.55 acre. Vermont Department of Highways to Agency of Environmental Conservation, Department of Forests and Parks via Executive Order #26 on December 26, 1973 by Governor Thomas P. Salmon. Recorded in Book 138, Page 311 in Town of Brattleboro land records.

Eleanor M. Babbitt to State of Vermont, warranty deed, 7/23/1957.  
Book 99, Page 357.

Rosalba Martel to Kenneth and Eleanor Babbitt, warranty deed, 9/12/1946.  
Book 84, Page 413.

Arthur Gagner to Felix and Rosalba Martel, warranty deed, 10/16/1924.  
Book 64, Page 146.

C.A. Borden to Arthur and Filimina Gagner, warranty deed, 2/1/1919.  
Book 59, Page 125.

Richards M. Bradley, Amy M. Bradley and John M. Moors to C.A. Borden, warranty deed, 11/18/1915.  
Book 57, Page 361.



William Carlton to Richards M. Bradley, warranty deed, 6/25/1912.  
Book 53, Page 315.

Richards M. Bradley to William Carlton, warranty deed, 6/25/1912.  
Book 53, Page 317.

Halbert and Mary E. Waterman to Richards M. Bradley, warranty deed, 11/19/1908.  
Book 50, Pages 299-300.

William Martin and wife to Halbert and Mary E. Waterman, warranty deed, 7/20/1904.  
Book 47, Page 30.

Sanford A. Thomas and wife to William M. Martin, warranty deed, 1/6/1902.  
Book 43, Page 141.

Sanford A. Thomas, leased to William H. Kent, 9/25/1900, released 1/6/1902.  
Book 42, Page 168.

W.A. Keyes and wife to Sanford A. Thomas, warranty deed, 8/21/1899.  
Book 42, Page 169.

Clark P. and Hosea Stone to Velona P. Keyes, warranty deed, 1/7/1867.  
Book Y, Page 60.

George Hawes and wife to Hosea Stone et al., warranty deed, 10/6/1865.  
Book W, Page 203.

John Burke to George Hawes, warranty deed, 4/2/1860.  
Book V, Page 109.

John W. Burt to John Burke, warranty deed, 4/9/1858.  
Book T, Page 523.

Asa Boyden to John Burt et al., warranty deed, 6/4/1857.  
Book T, Page 185.

Jonathan Hunt, Jr. to Asa Boyden, 10/11/1821.  
Book H, Page 484.

Cyrus Briggs to J. Hunt, Jr., 4/7/1819.  
Book H, Page 296.

### **Parcel 7**

For planning purposes, ANR lands adjacent to the Guilford Welcome Center are included in this management unit. District 1 staff did not conduct research on this parcel.

### **Dutton Pines State Park**

Dutton Pines State Park was acquired in one transaction.

Edith A. Dutton to State of Vermont, warranty deed, 7/10/1937.  
Book 26, Page 233.

Estate of Ruth J. Dutton to Edith A. Dutton, decree of distribution, 4/23/1937.  
Book 26, Page 211.

Estate of Myron J. Dutton to Edith A. and Ruth J. Dutton, decree of distribution, 8/22/1933.  
Book 26, Page 37.

Ruth and Edith were daughters of Myron J. Dutton.

Hattie A. Miller to Myron J. Dutton, quit claim of all rights to property, 11/28/1914.  
Hattie and Myron were siblings who inherited the farm from their father Adin A. Dutton.

Adin A. Dutton inherited the farm from his father Alonzo Dutton, Jr., though the transaction was not found to be recorded in the town land records.

Alonzo Dutton, Jr. inherited the farm from his father Alonzo Dutton, though the transaction was not found to be recorded in the town land records.

### **Sweet Pond State Park**

Sweet Pond State Park was acquired in one transaction. A subsequent boundary line agreement was entered into with an adjoining property owner to settle a boundary dispute on land near the pond.

Town of Guilford. 100 acres. Mildred V. Blauvelt to State of Vermont via warranty deed January 4, 1975. Recorded in Book 55, Page 291, Town of Guilford land records.

Tirzah Sweet and Susan M. Sweet to Joseph F. and Mildred V. Blauvelt, warranty deed, 10/13/1964.  
Book 37, Page 290.

Charles C. and Susan M. Sweet to Tirzah Sweet and Susan M. Sweet, warranty deed, 7/28/1945.  
Book 30, Page 235.

Constanti Borkovoski to Charles and Susan Sweet, warranty deed, 9/2/1935.  
Book 27, Page 80.

E.W. Packer and J.A. Horton to Konstanti Borkowski, warranty deed, 4/14/1898.  
Book 21, Page 69.

Executors of the Estate of Cynthia A. King (Hunt and Bullock) to E.W. Packer and J.A. Horton, warranty deed, 3/23/1891.  
Book 20, Page 301.

S.S. Hunt and J.S. Bullock, executors of the estate of Cynthia A. King, administrators deed, 8/2/1890.  
Book 20, Page 300.

And

James L. Oakes and Rosalyn Oakes to Susan M. Sweet, warranty deed, 8/28/1964.  
Book 37, Pages 277-279. This is for submerged lands underneath the pond.

Boundary Agreement

James L. Oakes to State of Vermont, quit claim deed, 10/25/1977.

This resolved a boundary problem whereby discontinued town roads were previously used as boundaries, and established firm boundaries not reliant on road references.

### **Molly Stark State Park**

Comprehensive title searches were conducted for the parcels comprising Molly Stark State Park when the properties were acquired.

Parcel 1, 148 acres, town of Wilmington, was researched in 1947.

Parcel 2, 10 acres, town of Wilmington, was researched when the parcel came into State ownership in 1990.

## **Appendix D:**

### **Historical Resource Assessment and Maps (with Legal Constraints)**

A detailed historical assessment of the Brattleboro Management Unit was prepared by staff from the Archaeology Research Center from the University of Maine at Farmington in 2006. Summary tables from this report listing the historic resources within or in close proximity to each of the four parks are included in this plan.

#### Native American Context

According to the report from UMaine, no Native American sites have been identified within the parks which make up the Brattleboro Management Unit. Because Native American sites have been documented along the Connecticut and West Rivers and Broad Brook in the general vicinity of Fort Dummer and Dutton Pines State Parks, UMaine believes that given favorable environmental settings, BMU can be expected to have, or have the potential of having, unrecorded sites within the boundaries of each of the parks. An archaeological precontact site sensitivity analysis has been conducted for the BMU. Terraces or areas of level ground located at the lower elevations and especially near waterways should be considered as sensitive areas.

#### Historic EuroAmerican Context

The earliest European settlement in Vermont is believed to have occurred in this southeastern corner of the state in 1724 as settlers pushed northward from Massachusetts along the Connecticut River and its tributaries. Settlement expanded rapidly after the conclusion of the French and Indian wars in the early 1760s.

All four state parks of the BMU contain significant historic EuroAmerican sites. Along the western margin of Fort Dummer State Park is the old Guilford Road (laid out in 1774) which follows the early 18<sup>th</sup> century trail known as the Scout Path – a military road utilized by Fort Dummer. Also adjacent to Fort Dummer State Park is the Broad Brook Road, a route well known by Native Americans and the earliest migratory route for settlers entering the town of Guilford. Fort Dummer State Park contains one of Vermont's earliest slate quarries. Water-powered sawmill sites are found within Sweet Pond and possibly Fort Dummer State Parks. Dutton Pines and portions of Molly Stark State Parks were constructed by the Civilian Conservation Corps (CCC).

#### Dutton Pines State Park

Dutton Pines State Park was purchased by the state in 1937 from Edith Dutton to be developed into a park as a memorial to her father, Myron Dutton, who died in 1914. The 13-acre property was part of the Dutton Farm where Mr. Dutton had established a plantation of white pine trees in 1887. Additional trees were planted by the Dutton family in 1917 and 1925. According to Myron Dutton's scrapbook as it appeared in *Vermont* magazine in 1922, the Dutton family maintained this area as a public picnic and camping site even before the state acquired the property.

Civilian Conservation Corps (CCC) camp #P54 based out of Bellows Falls, Vermont, completed development of a day use picnic area at this park between 1938 and 1940. Facilities included a large parking lot, log shelter, caretakers dwelling, toilet building, water supply system with two drinking fountains, walking trails and eight picnic sites complete with fire places and picnic

tables. Dutton Pines State Park was dedicated as a state park on April 14, 1940, at a ceremony conducted by Governor George Aiken. Guests attending the ceremony included members of the Dutton family and the Civilian Conservation Corps.

Dutton Pines was maintained and staffed by a ranger who lived on site during the summer in the caretaker's cabin. Attendance at the park declined after the interstate was constructed and the Dutton Pines ranger position was eliminated in the late 1970s.

Two historic roads are located within the park. An abandoned section of Route 5 passes through the park and was modified by the CCC for use as a walking trail. Depot Street is a town road located on the northern side of the park that leads to a historic ferry crossing and a former railroad depot east of Interstate 91.

### Fort Dummer State Park

The formation of Fort Dummer State Park came as a direct result of the construction of Interstate 91 in the late 1950s. I-91 cut off and isolated the northeast corner of Guilford from the rest of the town. The only road access to this part of Guilford was through the town of Brattleboro.

According to the management plan written by former Park Regional Manager Ray Harwood in 1983, the Vermont State Highway Board was required by the Town of Guilford to purchase this land because the town was concerned that if private homes were constructed on this property, then the town would be required to either bus school children from this area to Guilford schools located on the other side of the interstate or to pay tuition for them to go to Brattleboro schools. In 1962, this property consisting of approximately 86 acres of the former Kinsman and Martel properties was conveyed to the Department of Forests, Parks & Recreation by Executive Order of the Governor of Vermont under the following conditions:

- The landowner would not petition or make demands on the Town of Guilford for the construction or maintenance of any roads or highways.
- The landowner would not make claims or demands on the Guilford School District for transporting or home schooling of children living on this property.

Two additional properties adjoining the original purchase were acquired in 1964 by the State, and the area was designated as Fort Dummer State Park. Construction of the park started soon after this land was acquired.

According to the 1983 management plan, one building remains from one of the original farms that now make up the park. The farmhouse from the former Kinsman farm is located off the old road heading south of the park entrance. Over the years this building has been modified and used as a maintenance shop and quarters for summer park help; however it has not been used or occupied for several years and is now boarded up.

Fort Dummer is considered to be the first EuroAmerican settlement in Vermont. Built in 1724, this fort served as the northern most out post along the Connecticut River until 1740. The site of the fort was flooded in 1908 when the Vernon Dam was constructed. Fort Dummer State Park is located approximately one mile from the original site of the fort.

### Molly Stark State Park

Molly Stark State Park was established in 1940 when the state acquired 148 acres on the west side of Mt. Olga. That same year, the State purchased a 3-rod right-of-way over lands of Henry Meyer to access the property from Route 9. According to the *Biennial Report of the Vermont Forest Service* for the term ending 1940, the acquisition of this area was made possible by the donation of the purchase price by interested citizens of Brattleboro and Wilmington. In 1979 10.1 acres surrounding the right-of-way to Route 9 were acquired through an executor's deed of Margaret M. Haynes. It is believed that Mt. Olga is named after Olga Haslund.

Over the 70 years that the Department of Forests, Parks and Recreation has owned the property, there is a history of acreage adjustments which have resulted in the 160 acres that comprise Molly Stark State Park today. First there was a land exchange in 1947 with Leon Hall concerning lands between the park and Highway #9. In 1950, there was an agreement with R. A. Farrington which established the southerly most boundary line. Additionally in 1986, the Vermont Agency of Transportation requested several acres in an expansion of Route 9.

Between 1935 and 1937 crews from the Civilian Conservation Corps (CCC) camp #P63 based out of Wilmington, Vermont, developed a small picnic area on this property for use by tourists traveling Route 9 and local residents. The picnic area contained a pit toilet building, approximately 12 picnic tables and stone fireplaces, and a graveled entrance road. When the state constructed the present campground area in the late 1950s, some of the CCC structures were integrated into the new design while others were eliminated or abandoned. A number of the CCC built stone fireplaces can still be found in the park. The former CCC toilet building has been modified and is currently used as a small nature center.

Hogback Ski Area opened on the northeast side of Mt. Olga in 1946. Hogback was a small, family oriented ski area consisting of approximately 12 trails accessed by several rope tows and t-bars and relied entirely on natural snow. In 1955 the ski area expanded onto state land near the summit of Mt. Olga with the clearing of two trails and the construction of a new lift. The mountain made lease payments to the state of \$100 per year until 1985 when the fee was increased to \$500 per year. Hogback Ski Area closed permanently in 1986 due primarily to the high cost of obtaining liability insurance. Several rusty lift towers and a t-bar lift terminal remain within the park and provide hikers with evidence of this small Vermont ski area's history.

Mt. Olga was one of a number of Vermont mountaintops used for forest fire detection in the mid-1900s. The Vermont Forest Service, in cooperation with the Vermont Timberland Owners Association, erected a wooden fire tower with an octagon wooden cab on the summit in the early 1930s. A cabin was also constructed for use by the fire lookout watchman. In 1949 this wooden tower was taken down and replaced by a steel tower. The cab of the old wooden tower was rebuilt on the ground and used as a storage shed.

The replacement steel tower now located on the summit of Mt. Olga had originally been erected in 1934 by the Civilian Conservation Corps on the summit of Bald Mountain within Townshend State Forest. It is a 55' tall Aermotor model fire tower with a 7' x 7' enclosed metal cab. This steel tower was dismantled on the summit of Bald Mountain and transported by truck to the summit of Mt. Olga where it was reassembled. The Mt. Olga tower was used for forest fire



detection until 1974, when the Forests and Parks Department closed a number of towers and started using a system of aerial fire detection flights during periods of high fire danger. Maintenance work including painting, stair replacement, and window replacement with plexi-glass was conducted on the tower during the mid 1980s. The Mt. Olga tower was listed on the National Historic Lookout Register in 1995. Two old wooden fire lookout watchman cabins that were in dilapidated condition due largely to vandalism were dismantled and removed from the summit in 2005. A safety inspection of the tower was conducted in 2007 by John Guilmette from the DEC Facilities Engineering Section.

The summit of Mt. Olga has a history of use as an electronic communication site. In the early 1950s the Vermont State Police erected a tower and a concrete block building on the summit to house their radio repeater station. In 1968, the state leased a 30' x 30' parcel of land on the summit to New England Power Company for the construction of a 75' tall tower with a radio antennae communication system to serve the Upper Deerfield River Valley Service Area. In 1994, this tower was replaced with a stronger tower of the same size and additional microwave antennae were installed. The old tower was dismantled and removed. A work road provides access to the summit from the ski area side.

Molly Stark State Park campground was officially opened on July 2, 1960.

#### Sweet Pond State Park

Sweet Pond State Park was purchased by the State of Vermont from Mildred Blauvelt in 1975 with contributing Land and Water Conservation Funds. The park occupies a parcel of land that marks the original settlement of the Franklin family in Guilford. The original 100-acre parcel was divided in 1777 and sold to Philip Franklin and his son, Philip, Jr. The Franklin family cemetery is located in the park and contains multiple generations of Franklins, including the 1797 grave of Philip Franklin.

The Franklins established a small diversified farm on the property that passed through several owners over the next 150 years, not all in the Franklin family. Land use changed from a working farm to a summer vacation house in 1935 when the property was sold to Dr. Charles and Susan Sweet. The current house located within the park was built as a guest house on the property to replace a farmhouse that burned in the early 1900s.

The Sweet Family owned the property until 1964 when it was sold to the Blauvelts.

Sweet Pond State Park is located in an area that historically has depended upon farming and logging as primary means toward livelihood. Research conducted by UMaine indicates that the park contains the remains of a ca.1880 water-powered mill site and a farm with borders along two parallel county roads. A stone box culvert or bridge is located on a section of abandoned road near the present house.

The Sweet Pond Dam underwent repairs in 1987-88. The pond was drained and the sediment in front of the dam excavated in order to facilitate the repairs.

Historic resources within or in close proximity of Dutton Pines State Park.

County, Town, State Park	Known or Expected	Historic Resources	Preservation Theme	Historic Context	Maps	Property Types	Comments	Significance/ Recommendations
Windham Co., Dummerston, Dutton Pines State Park	K	19 <sup>th</sup> Century Farmstead	Agriculture	Diversified and Specialty Agriculture	McClellan- Chace, Beers	Slate-built stone walls	Stone wall extends through park and parallels abandoned sections of old Route 5 and Depot Road. Farmstead and building complex are outside boundaries of park.	High priority. Stone wall integral to Dutton farm and most visible 19 <sup>th</sup> century feature in park.
						Tree Plantations	Maples along Ferry Road and plantations of white pines.	High priority. Represents Dutton's efforts at conservation and improving the aesthetic qualities of the farm.
	K	Historic Road	Transportation	Overland Transporta- tion	McClellan- Chace, Beers	Historic road segment, road bed, possible culvert and other related features.	Abandoned section of old Route 5 runs through park to Depot Road. Features related to its construction may be present. Converted to foot path by CCC.	High priority. Abandoned sections may date to 18 <sup>th</sup> century.
	K	Historic Park/CCC	Culture and Government, Tourism	The New Deal-CCC	Simon 1937	Picnic pavilion, cabin, campsites/stone fireplaces, water fountain, stone and ramped steps, parking area with guard rail and drop inlets, memorial stone, walking trails.	Park converted to day-use only, fireplaces and other features/ structures minimally maintained (except pavilion).	CCC built structures and features are eligible for inclusion in the National Register's, Historic Park Landscapes in National and State Parks multiple cover.
	E	Quarry	Industry and Commerce	Sand and gravel extraction		Borrow pits, larger openings	Possible gravel pits border parcel's boundary with present Route 5. Pits are also present along old section of road. Source of state is local and may have been quarried on Dutton farm.	Low priority if quarrying limited to gravel extraction. Higher priority if state quarry is present within park.

Historic resources within or in close proximity of Fort Dummer State Park.

County, Town, State Park	Known or Expected	Historic Resources	Preservation Theme	Historic Context	Maps	Property Types	Comments	Significance/ Recommendations
Windham Co., Guilford, Vernon, Brattleboro; Fort Dummer State Park	E	Scout Path	Contact, Exploration, Conflict, and Early Settlement	French and Indian Wars (1724-1763)		Scout Path, a historic military route/path.	Fort Dummer to Colrain, Mass. military route assoc. with Fort Dummer. Skirmish on path in vicinity of park. Path may have been affected by Guilford Road construction.	High priority. Represents one of the earliest EuroAmerican travel routes in Vermont. Section along park's western margin potentially undisturbed. VTDHP Early Roads context in progress.
	E	Military Outpost	Contact, Exploration, Conflict, and Early Settlement	French and Indian Wars (1724-1763)		Lookout(s) possibly stone constructed, small encampment, possible minimal forms of fortification.	Park overlooks site of fort, Connecticut River and Broad Brook. Probably utilized by both English and the French and Native Americans.	High priority. All artifacts, features and deposits from this time period (1724-1763) very significant. Historic vantage points within park should be buffered. Research and field inspection recommended.
	K	Broad Brook Road	Transportation	Overland Transportation	McClellan- Chace, Beers	Road segment, road bed, abutments, culverts, markers, other features.	Earliest settlers' route into Guilford (ca. 1760s) from Connect- icut Valley. Broad Brook also Native American travel corridor (e.g. part of Deerfield Road/ Captivity route, ca. 1704).	High priority. Park contains or borders sections of this road. As historic travel corridor, one of the earliest roads in Vermont. Old road alignments may be present. VTDHP Early Roads context in progress.
	K	Guilford Road	Transportation	Overland Transportation	McClellan- Chace, Beers	Road segment, road bed, other features are expected.	Town voted to build road 1774. Connects Brattleboro, Algiers (East Guilford) and Guilford Center.	High priority. Potentially undisturbed section along park's western boundary coincides with corridor of Scout Path. VTDHP Early Roads context in progress.

County, Town, State Park	Known or Expected	Historic Resources	Preservation Theme	Historic Context	Maps	Property Types	Comments	Significance/ Recommendations
<i>Fort Dummer State Park (Continued)</i>	K	Slate Quarry	Industry and Commerce	Quarrying	Beers	Quarry opening(s), rubble piles; poss. derricks, cables, roads, building(s) remains.	Commenced operation ca. 1810, ended ca. 1875. Early tools include augers, wedges and crowbars.	High priority historic resource. Slate quarrying not well documented in eastern Vermont. This site one of the earliest slate quarries in the state. Other openings may exist elsewhere in the park. Only one site recorded in Guilford. Recommend mapping, photo- documentation and full context development.
	K	Sikes and Boyden Farms	Agriculture	Diversified and Specialty Agriculture (ca. 1800-1875)	McClellan- Chace, Beers	Potential agricultural resources limited to stone wall(s), orchard, farm road(s), dump, fenceline(s).	Main set of buildings demolished during I- 91 construction.	Moderately high priority given impact of road construction. However, historic features and deposits may be present dating to late 18 <sup>th</sup> -early 19 <sup>th</sup> c. In depth background research on both farms recommended.
	E	Saw Mill(s)	Industry and Commerce	Logging and Lumbering, Small Water Powered Mill Production	McClellan- Chace, Beers	Sawmill mill pond, dam, head/tail race, outbuildings, sawdust pile.	Two mill sites with resources potentially within park boundaries.	High priority resources. Recommend field inspection to determine if they are within park boundaries.

Historic resources within or in close proximity of Molly Stark State Park.

County, Town, State Park	Known or Expected	Historic Resources	Preservation Theme	Historic Context	Maps	Property Types	Comments	Significance/ Recommendations
Windham Co., Wilmington, Molly Stark State Park	K	Barnard-Fox Farm	Agriculture	Diversified and Specialty Agriculture (ca. 1810-1900)	McClellan- Chace, Beers, Forest Service	Possible bridge/ dam abutment (farm-related), stone enclosure, stone walls and stone piles; expected are farm dump, sugar arch/house, orchard.	20 <sup>th</sup> c. park formation replaced farmhouse and building complex. Potential high for subsurface structural remains, features and historic deposits.	High priority resources include all 19 <sup>th</sup> c. stone work, with highest priority given to poss. dam/bridge abutment and stone enclosure. Field documentation and mapping recommended as resources contribute to National Register's multiple cover on Vermont agriculture.
	K	Historic Park	Culture and Government, Tourism	New Deal-CCC, Outdoor Recreation	Forest Service	Fireplaces, campsites, trails, roads, stone culverts and other potential CCC- construction.	CCC work terminated before completion. Section of older picnic area abandoned. New construction (ca. 1950- 1964) replaced/ incorporated CCC-era construction.	All CCC-related resources high priority and contribute to National Register's multiple cover. Historic Park landscapes in National and State Parks. Identification, document- ation and additional research strongly recommended.
	K	Firetower	Culture and Government, Tourism	Forest Conservation/ Fire Prevention, Outdoor Recreation	Forest Service	Firetower with two wood framed buildings, power line-work road, water trail, other features, deposits, hiking trail, pavilion.	1930 tower replaced in 1958 by tower formerly located on Bald Mountain.	High priority resource listed in 1995 in National Historic Lookout Register. Potentially eligible for listing in NRHP.
	K	Ski Lift	Tourism	Outdoor Recreation	Forest Service	Components of ski lift, including 3 lift towers and counter balance station.	1960s-era ski resort, abandoned. Main building complex outside park boundaries.	Low priority resources due to late date of construction.

Historic resources within or in close proximity of Sweet Pond State Park.

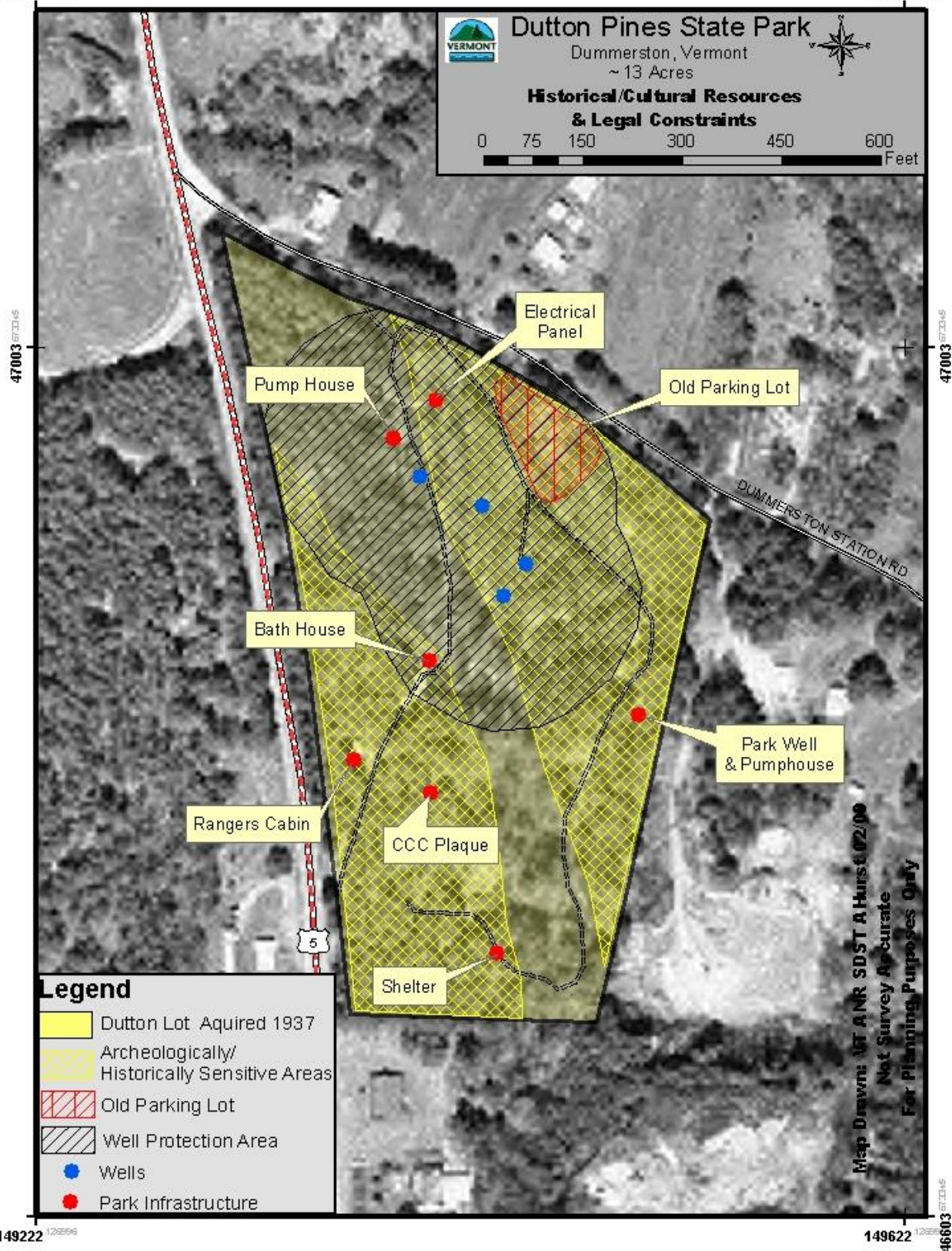
County, Town, State Park	Known or Expected	Historic Resources	Preservation Theme	Historic Context	Maps	Property Types	Comments	Significance/ Recommendations
Windham Co., Guilford, Sweet Pond State Park	K	Late 18 <sup>th</sup> - 19 <sup>th</sup> c. Farmstead	Agriculture	Diversified and Specialty Agriculture (ca. 1790-1900)	McClellan- Chace, Beers	Remnants of bank barn, other out- buildings, midden/ depression stone walls, farm dump, roads, sugar arch/ house, orchard.	Intact stone floor and foundation remnants of barn, other features and structural remains likely.	High priority. Farmstead exhibits relatively high degree of archaeological integrity. Documentation and study of property types within context of a neighborhood, or rural historic district recommended.
	K	Cemetery	Culture and Government	Franklin Cemetery	State 1978	Gravestones surrounded by dry laid stone wall, marble inscribed signpost.	Several generations of Franklins and others.	Highly significant local resource. Reinforce context of rural historic district.
	K	Saw Mill	Industry and Commerce	Logging and lumbering, water powered mill production	Beers	Dam with flood /sluice gate, flume/tailrace, mill foundation remnants.	20 <sup>th</sup> c. repair to stone- built gravity dam. Intact portions of flume/tailrace, mill foundation.	High priority. Integrity of dam. Intact stone work warrants mapping and documentation. Sediment build-up adversely affects some sections of park. VTDEC dam study in progress.
	K	Historic Road	Transportation	Overland Transportation	McClellan- Chace, Beers	Abandoned section of county road, stone bridge/box culvert.	Road segment passes through dooryard of farmstead; bridge/ culvert with corbelled, dry laid construction of undressed stone, in danger of collapse.	High priority. Road links Guilford Center and Leyden/Greenfield, Mass. Dates to 18 <sup>th</sup> century. Bridge/culvert should be repaired or stabilized and the road mapped. Areas along farm road assessed for archaeological resources. VTDHP Early Roads context in progress.



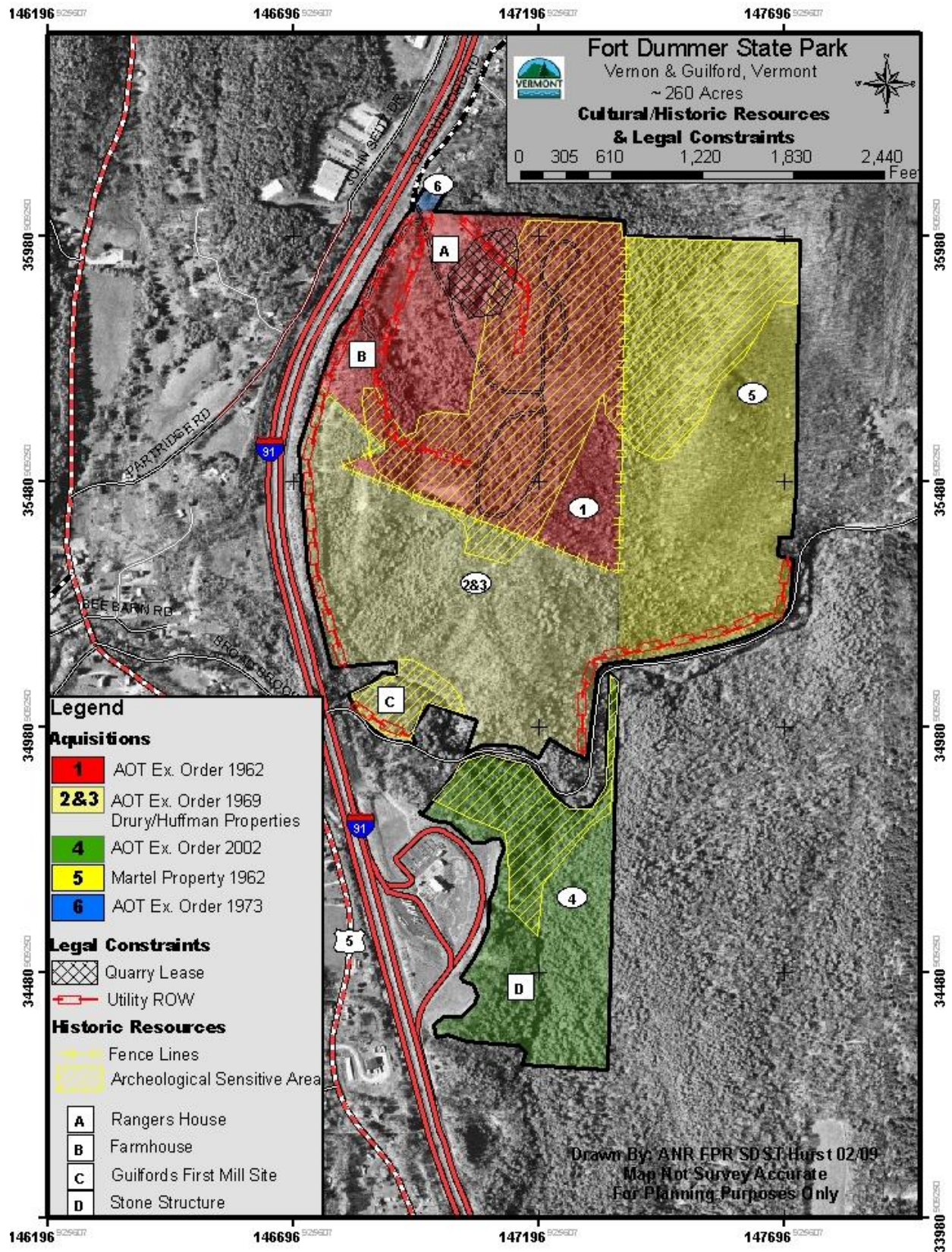
County, Town, State Park	Known or Expected	Historic Resources	Preservation Theme	Historic Context	Maps	Property Types	Comments	Significance/ Recommendations
<i>Sweet Pond State Park (Continued)</i>	K	Summer House	Tourism	Seasonal residents	—	Late 19 <sup>th</sup> -early 20 <sup>th</sup> c. guest house.	Original farmhouse burned, rebuilt ca. late 19 <sup>th</sup> -early 20 <sup>th</sup> c. as summer house on Sweet estate.	Moderate priority. Documen- tation recommended but structural remains, landscape features and cultural deposits are secondary in importance to earlier farm/mill/rural neighborhood complex.
	K	Landscape Grounds	Tourism	Seasonal residents	—	Landscaped grounds and bridle trails.	Other structures and features may be attributable to this time period.	Moderate priority. Documen- tation recommended of all landscape features in this context.

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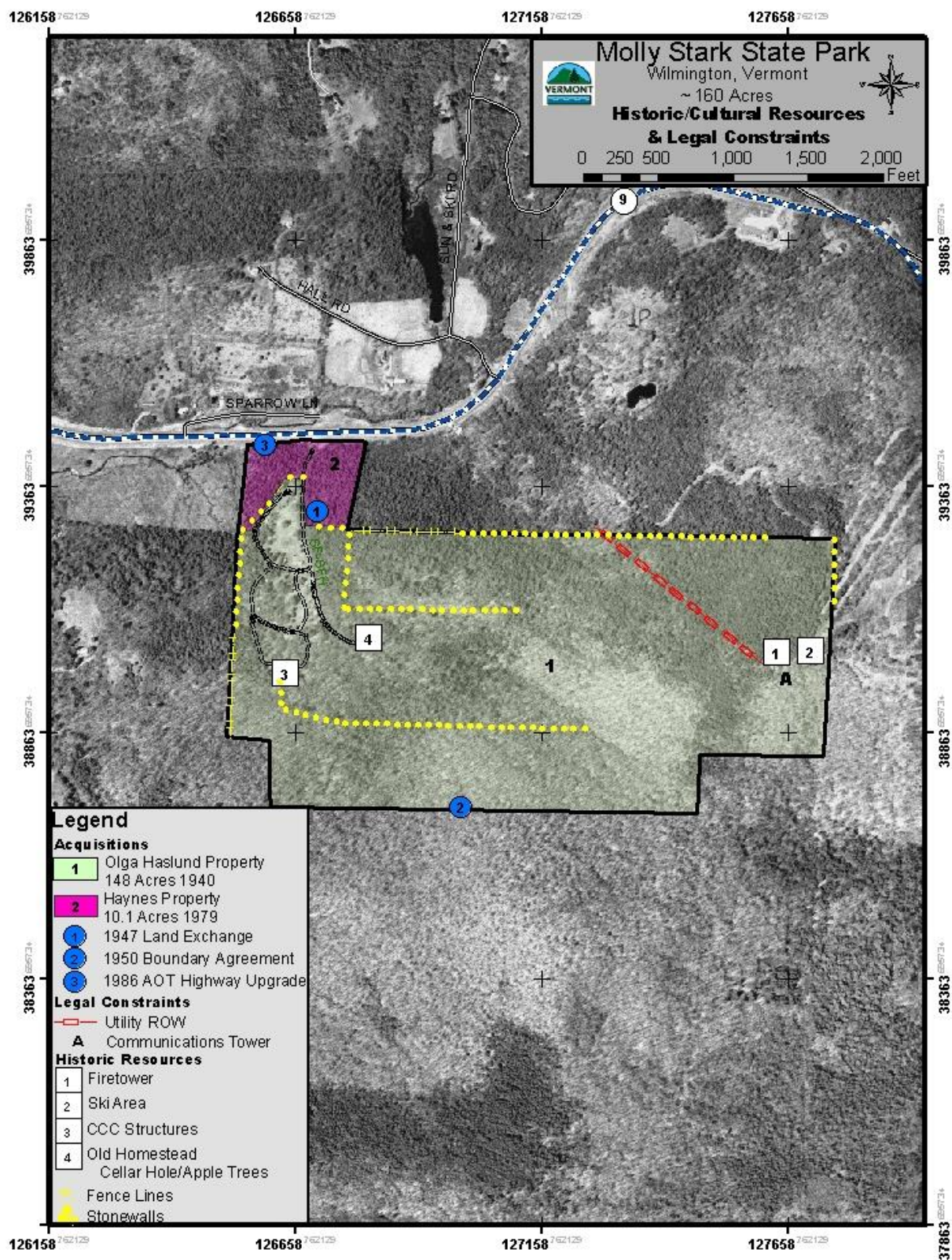
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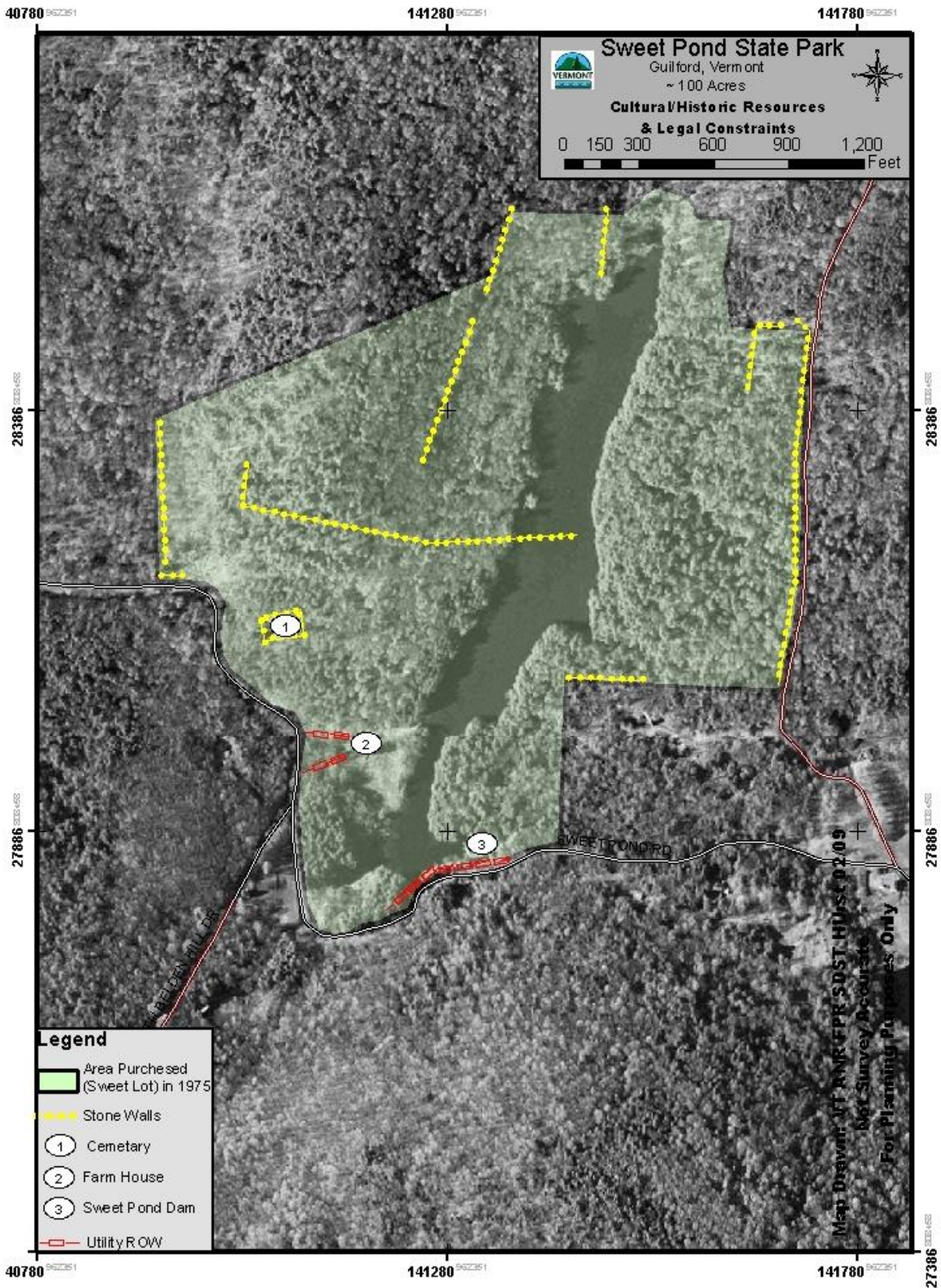












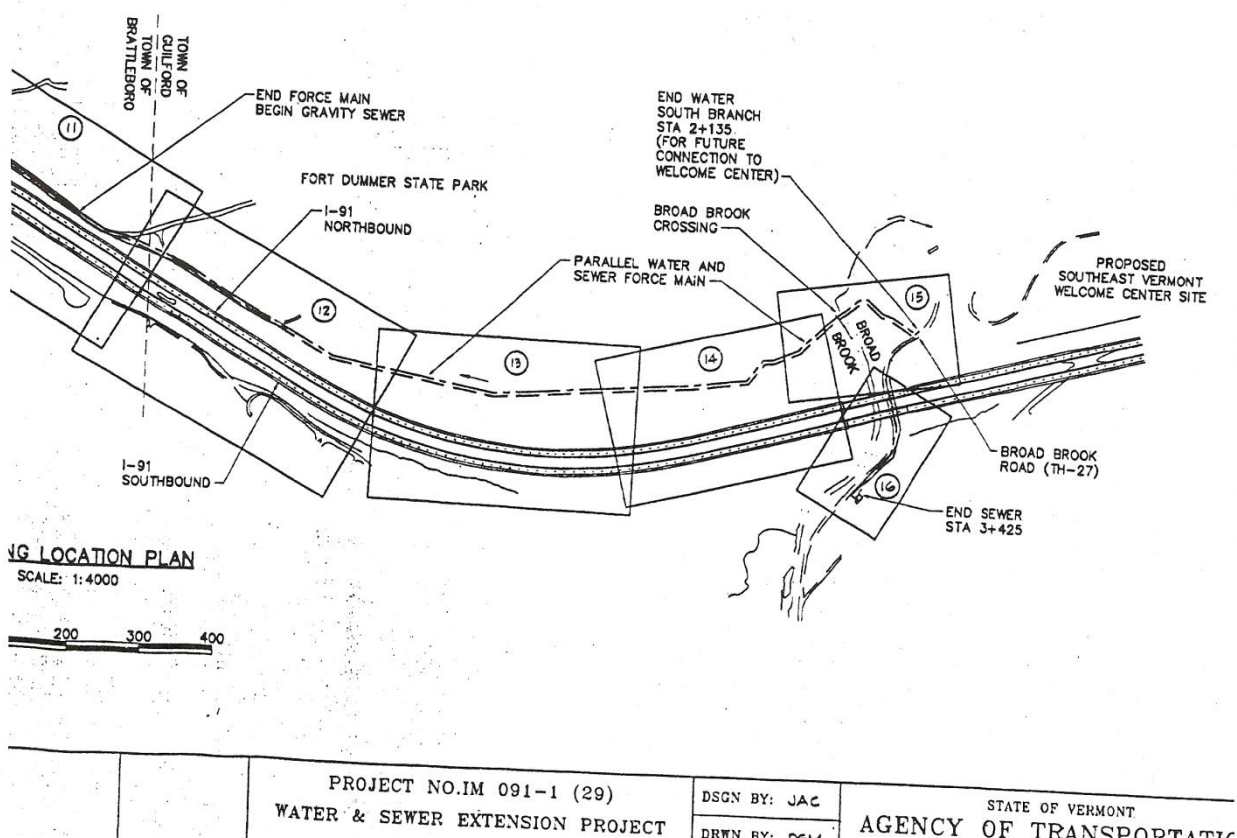
## Sewer Line Agreement – VTrans, Town of Brattleboro, FPR

Extensive search by FPR and VTrans staff have been unable to locate a signed agreement for this sewer line and maintenance corridor. However, extensive documents indicate the agreement was executed in good faith by all parties.

The sewer line (built by VTrans) is underground within a cleared corridor parallel to the I-91 fence. The opening is seeded and stable and is approximately 30 feet wide. It crosses underneath Broad Brook and Broad Brook Road and ends at the Guilford Welcome Center on I-91 north.

Key points of agreement:

- VTrans has maintenance and repair access subject to written approval of FPR.
- Land ownership remains with FPR.
- We cannot put structures within 40 feet of pipe route.
- Surface is usable for light recreation.
- VTrans will allow water and wastewater lines from the park to tie into the project.
- Maintenance of vegetation within the corridor is the responsibility of FPR and requires no approval from VTrans.





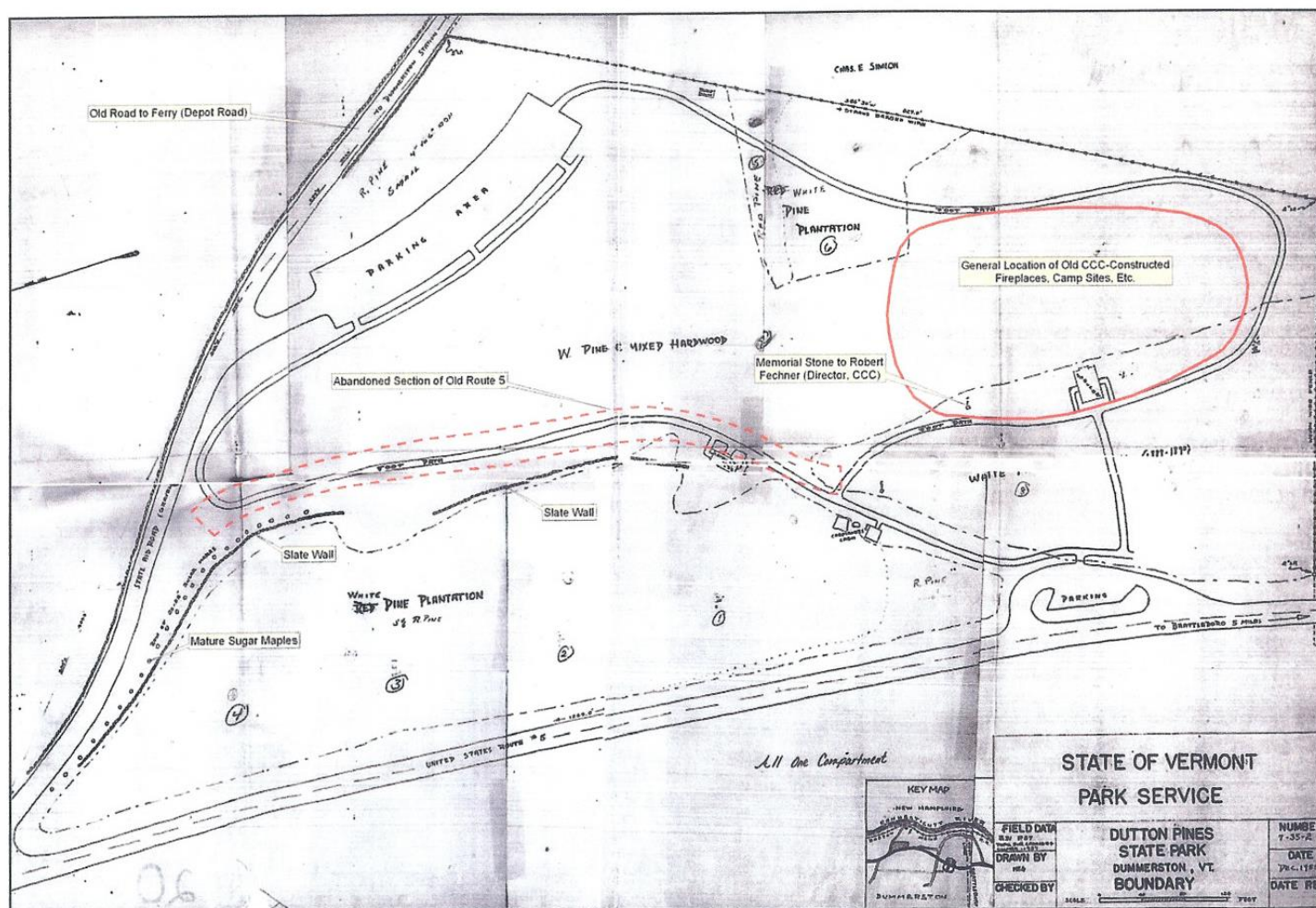


Figure 7. Vermont Park Service map showing boundaries and general layout of Dutton Pines State Park, with areas of historical interest added (Vermont Park Service 1955).

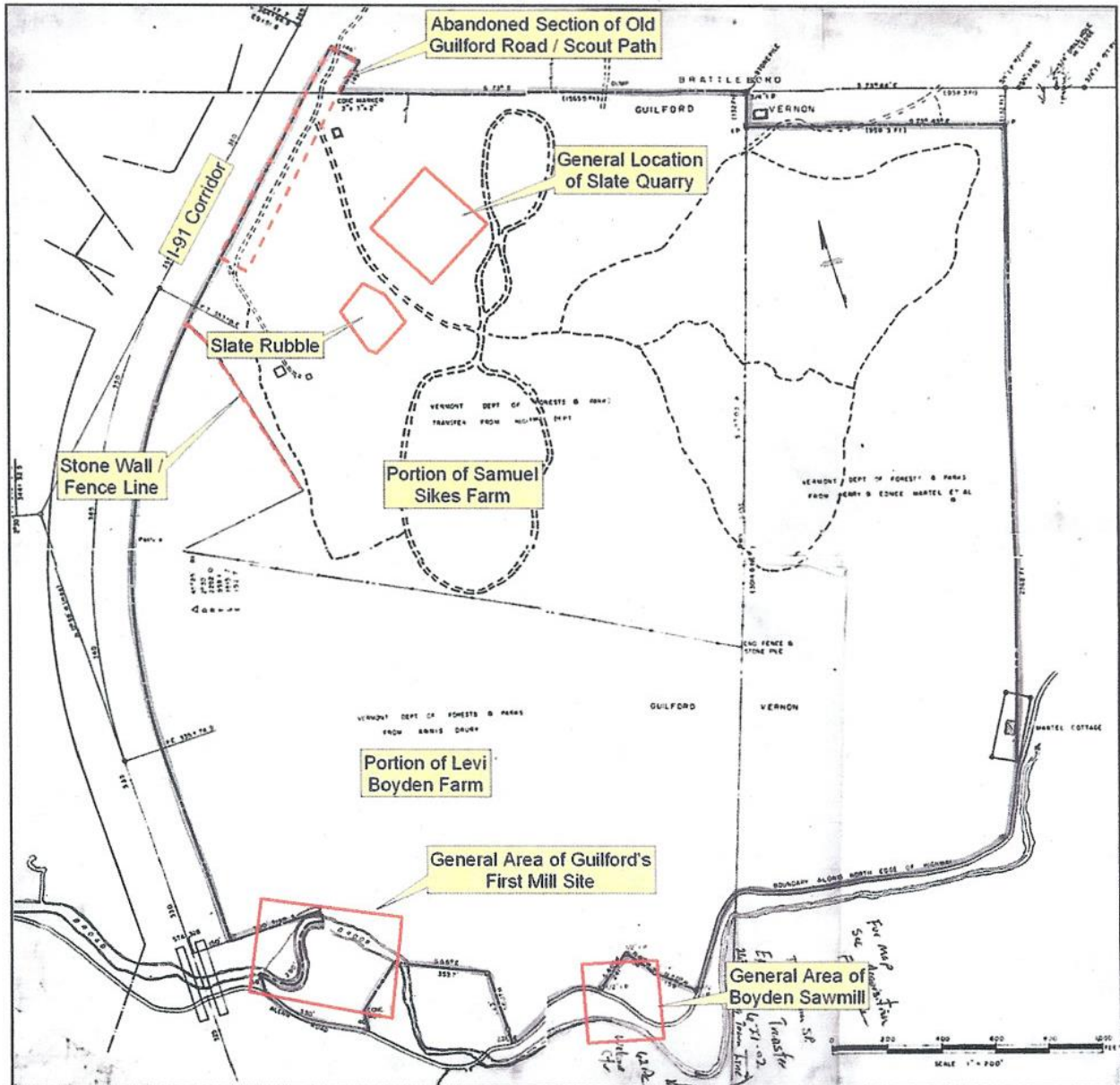


Figure 3. Vermont Forest Service map showing boundaries and general layout of Fort Dummer State Park, with areas of historical interest added (Vermont Forest Service 1969).



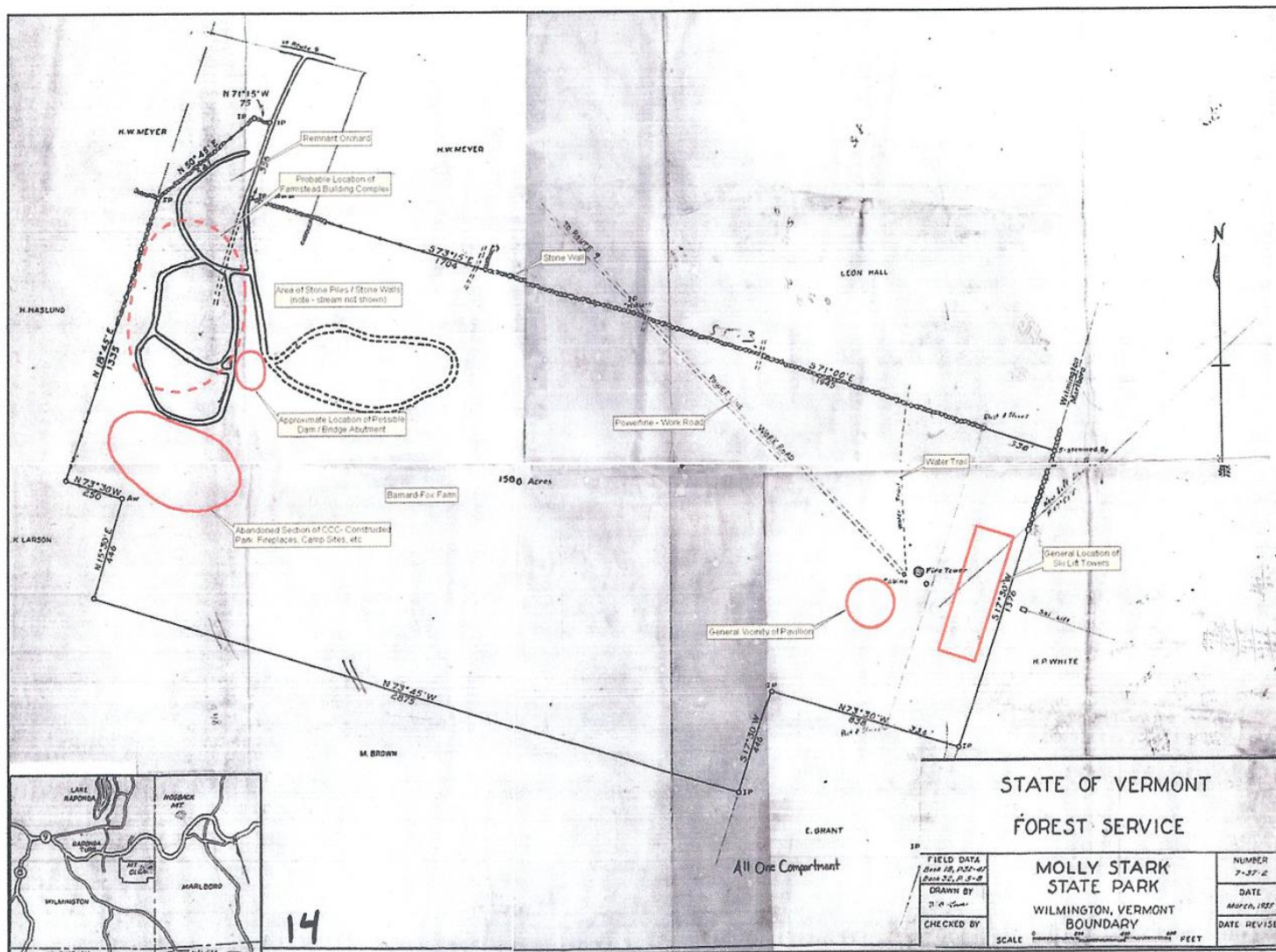


Figure 17. Vermont Forest Service map showing boundaries and general layout of Molly Stark State Park with areas of historical interest added (Vermont Forest Service 1955).

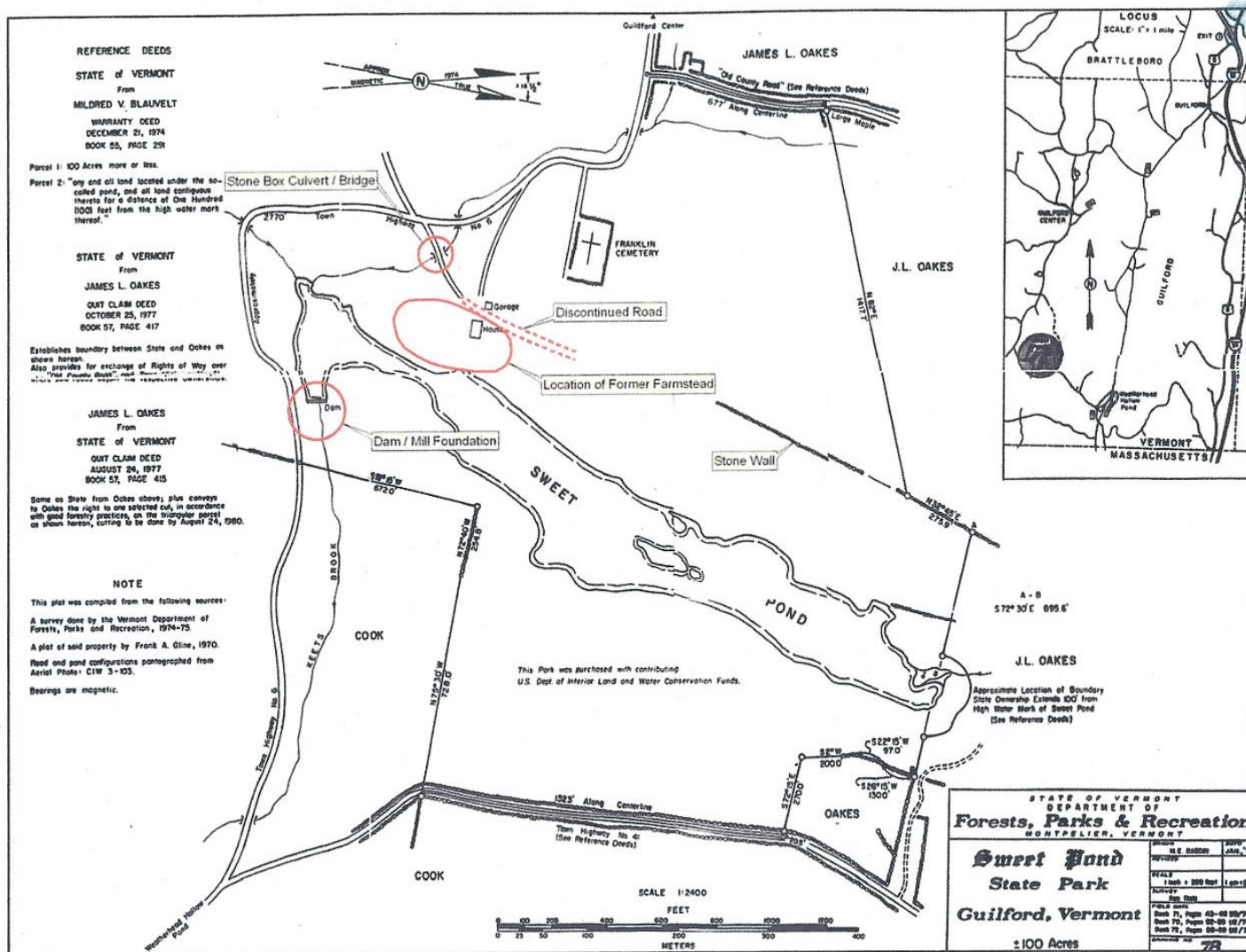


Figure 12. Department of Forests, Parks and Recreation map of Sweet Pond State Park showing boundaries and general layout of the park with areas of historical interest added (Dept. FP&R 1978).

## **Appendix E: Recreational Assessment and Maps**

The four state parks that comprise the Brattleboro Management Unit are located in the southeast corner of Windham County surrounding the Town of Brattleboro, Vermont. Two different categories of recreational opportunities are experienced by the public within the BMU.

The campground areas located at Molly Stark and Fort Dummer State Parks and the picnic shelter at Dutton Pines State Park are all characterized by high recreational use and substantial modifications to the property including buildings, parking lots and roads. The campgrounds are supervised by park rangers and are heavily used by people during the park season. These three areas are located adjacent to busy roads with the sound of vehicle traffic constantly in the background. Sights and sounds of people are expected and readily evident in these areas, and the chance of contact with other recreational users is high.

A recreational experience in a less developed environment with fewer people is found at Sweet Pond State Park and in the areas outside of the developed campgrounds at Fort Dummer and Molly Stark State Parks. These areas are characterized by a natural appearing setting with woods roads and maintained hiking trails. Contact with other users is generally low, but evidence of other users is high. These areas are located less than one half mile from maintained town roads.

### Dutton Pines State Park

Dutton Pines State Park is located along US Route 5 approximately 3.0 miles north of Brattleboro and 0.5 miles west of Interstate 91. Commercial or residential development is found on all sides of this 13-acre property. The park contains several Civilian Conservation Corps (CCC) era structures including a picnic shelter, ranger's cabin and stone fireplaces. The facilities have not been actively utilized for a number of years. Recreational use of this property is limited to visitors using the picnic shelter and walking on the old roads or paths.

### Fort Dummer State Park

Fort Dummer State Park contains 260 acres on the outskirts of Brattleboro. The park entrance is adjacent to Interstate 91 off a dead end road that goes through a residential development.

The park contains a campground that is open from Memorial Day to Labor Day. The campground has 51 tent/trailer sites and 10 lean-tos located in two camping loops each with a toilet building. There is a sanitary dump station but no hook ups. A picnic area and large open field are also located within the park.

Fort Dummer State Park contains two hiking trails that are heavily used by campers during the park season and also by area residents when the park is closed. The Sunrise Trail is a loop trail of approximately 0.9 miles in length that starts off the park campground road and then climbs a moderately sloping ridge to a cleared vista of the Connecticut River. This trail is an easy hike across flat to moderately sloped terrain.

The Sunset Trail is a short trail approximately 0.3 miles in length that connects the open field area with an access road that goes to the park entrance. This trail is also an easy hike over flat terrain. One cleared vista is located along the trail providing hikers with nice views to the west.



Broad Brook is located along the southern portion of the park and provides opportunities for native brook trout fishing. Hunting for deer, gray squirrel and turkey may occur on the easterly and southerly portions of Fort Dummer State Park.

#### Molly Stark State Park

Molly Stark State Park contains 168 acres. The park entrance is located off Vermont Route 9 approximately 4 miles east of Wilmington.

The park contains a campground that is open from Memorial Day to Columbus Day. The campground has two camping loops with a total of 23 tent/trailer sites and 11 lean-to sites. Each loop has a rest room with showers. Park facilities also include a play area and a picnic pavilion.

Two hiking trails are located within Molly Stark State Park. One of the major attractions of the park is the Mt. Olga Trail – a 1.7 mile long loop trail of moderate difficulty that climbs to the 2,415' summit of Mt. Olga, where hikers can then climb the 55' tall steel fire tower and enjoy a panoramic view of southern Vermont. According to a letter written in 1971 by then State Lands Forester Roy Burton, the northern loop of the Mt. Olga Trail was originally brushed out in 1960 by the fire observer to provide access to the fire tower from the park. Apparently no erosion controls were built when the trail was constructed and serious erosion occurred. The southern loop was laid out and constructed in 1970. Trail maintenance work, including waterbar construction and several short trail relocations, has been conducted periodically over the last 15 years primarily by crews from the Vermont Youth Conservation Corps (VYCC). Park Division staff estimates that in 2005, approximately 4,000 Molly Stark State Park visitors hiked the Mt. Olga Trail to the summit during the 5½ month park operating season.

The summit of Mt. Olga has an electronic communications site with a 30' x 30' area leased by National Grid. A 75' tall steel tower with four electronic radio dish antennae attached is located approximately 50' south of the fire tower. Two small buildings, one currently being used for the electronic site and the other abandoned, are also located on the summit.

The second hiking trail within Molly Stark State Park is a short trail of approximately 0.3 mile in length called the Nature Center Trail. This trail starts near the campground off the south end of the Mt. Olga Trail and passes by the small park nature center building.

Hunting is a popular activity here once the park closes. Most of the hunting activity occurs during the deer and ruffed grouse seasons.

Adjacent to Molly Stark State Park across the town line to the east is the 591-acre Hogback Mountain Conservation Area. The Town of Marlboro purchased the property, formerly the Hogback Mountain Ski Area, in March 2010 after several years of fund raising. The Town aims to provide opportunities for low impact public recreation and forest management on the property. The Vermont Land Trust facilitated the purchase and holds a permanent conservation easement. Funds were also obtained from the Vermont Housing and Conservation Board. The Town of Marlboro has an agreement to provide access for the National Grid to the summit for through July 13, 2018. At the time this plan was written, the intention was to keep the VAST trail open though the group was weary of unauthorized off-roading on the trails in non-winter months. In 2010, the group expressed an interest in an MOA to join the state park and Hogback Mountain Conservation Association's trail system in a formal manner and did so in August 2011.

### Sweet Pond State Park

Sweet Pond State Park contains 100 acres and is located on a gravel surfaced class III town road in a remote area of Guilford. The major recreational attraction within the park is Sweet Pond, a scenic 18-acre pond with a largely undeveloped shoreline. Kayaking, canoeing, largemouth bass fishing, and wildlife viewing are activities that occur here. A car top boat launch with limited parking provides boat access to the pond. The water body is used for swimming by local residents

Under Vermont Water Resources Board rules, the use of internal combustion motors and personal watercraft (jet skis) are prohibited on Sweet Pond. Vessels powered by electric motors shall not exceed 5 mph.

Sweet Pond was drained in late April 2011 by the Department of Conservation's Dam Safety Division. Options for removing, repairing or replacing the dam at the pond are currently being researched and evaluated. Significant local opposition to draining the pond was received and subsequently local residents have organized in varying degrees and capacities to support repairing or replacing the dam to refill the pond.

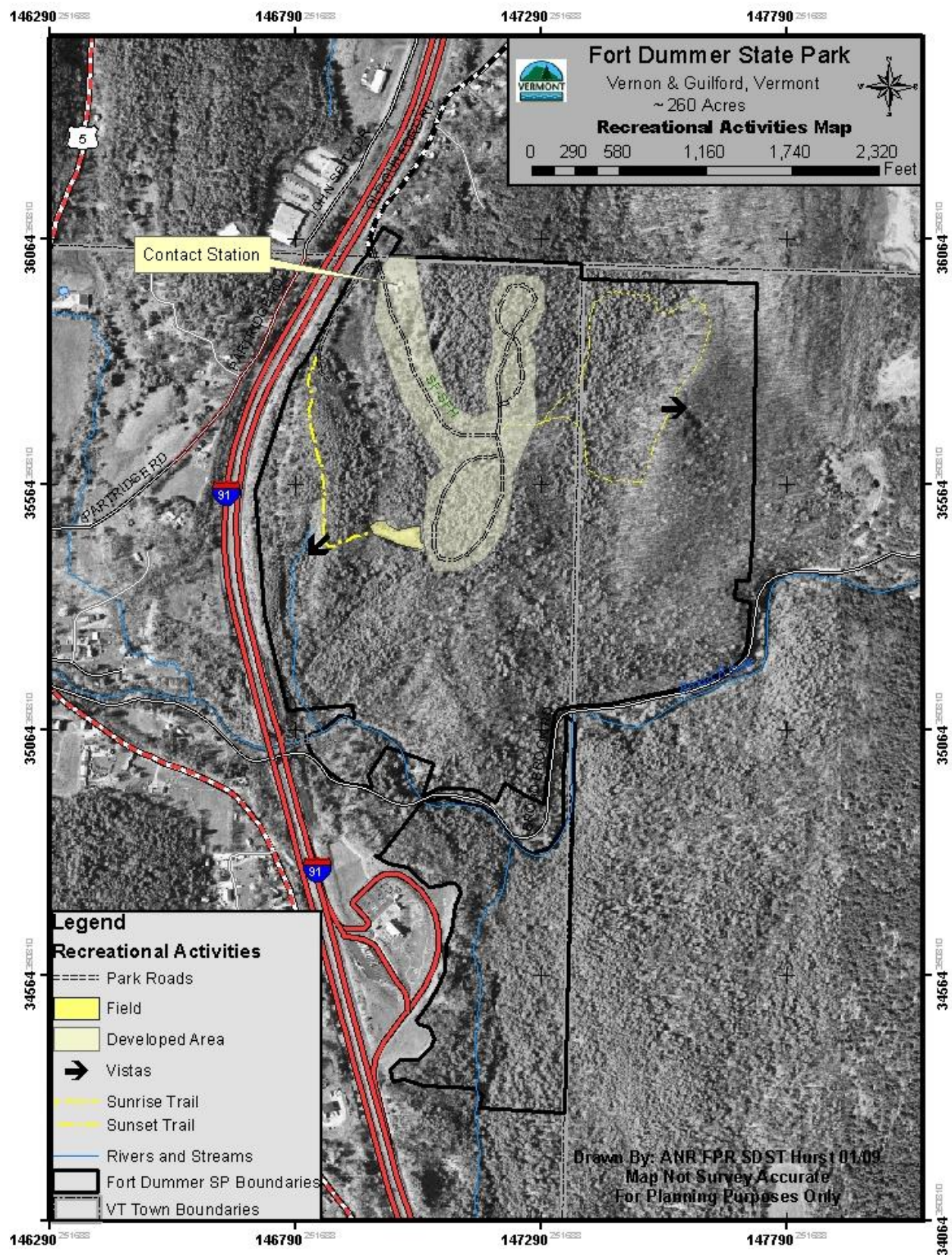
A hiking trail named the Sweet Pond Trail is located within this park. This scenic trail is one mile in length and circles the northern end of the pond traversing gentle to moderately sloped terrain. Four vistas are located along the trail and provide hikers with the opportunity to enjoy the beautiful scenery and wildlife associated with the pond. This trail was constructed in 1987 by a Vermont Youth Conservation Corps (VYCC) crew. The trail starts from a small parking area that was also developed in 1987 and then expanded in 2008.

Approximately 150 feet of the trail crosses a wetland/beaver pond area at the northern end of the pond on a series of simple foot bridges. Native materials were used to construct these bridges to avoid the possibility of chemicals leaching into the wetland from pressure treated lumber. The bridges are constructed of 3" x 8" rough sawn hemlock planks from Harry Evans' sawmill in Guilford, lag bolted onto black locust sill logs.

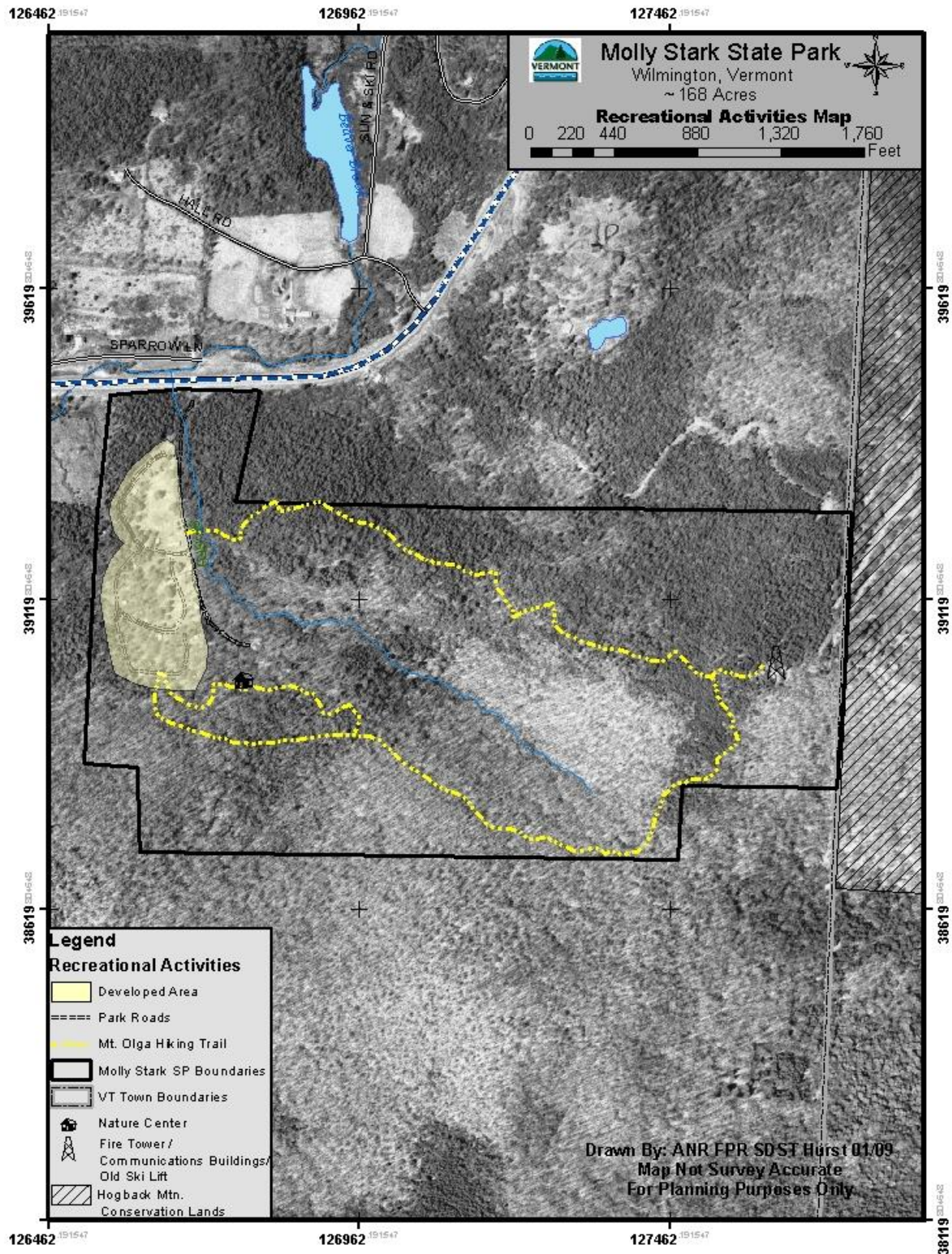
Beavers constructed a new dam at the northern end of the pond in 2005 that raised the water level of the pond enough to flood the section of trail that crosses the wetland. Adjoining landowner James Oakes granted permission to temporarily route the trail on his property to avoid the high water. A beaver baffle was installed in this new dam in the summer of 2006 under the supervision of the Vermont Fish & Wildlife Department. This device lowered water levels enough to move the trail back to its original location.

Hunting activity occurs over a large portion of Sweet Pond State Park. Most of the activity centers around deer season; however, turkey, ruffed grouse, gray squirrels and waterfowl are also hunted here.

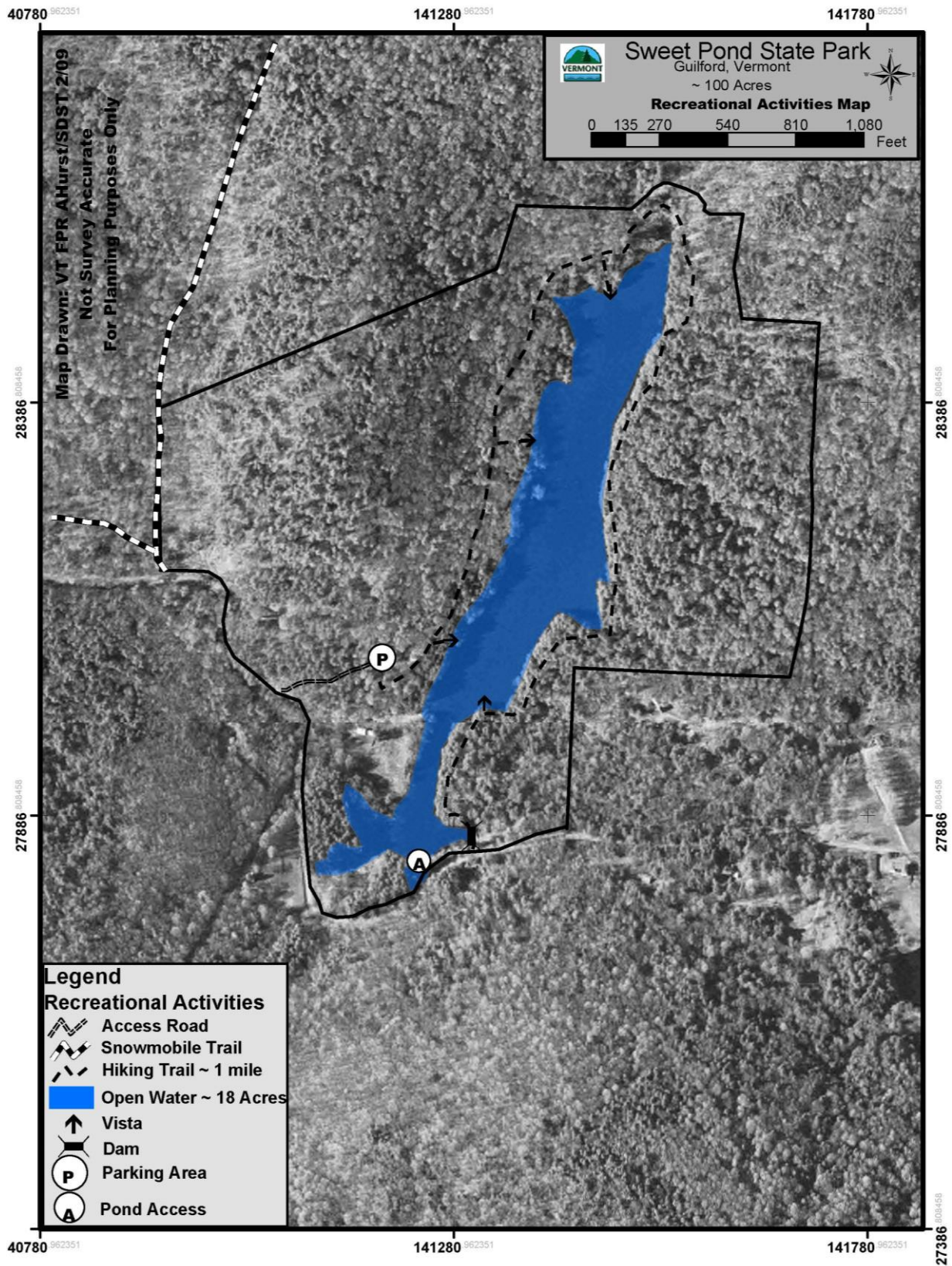
Approximately 680 feet of Vermont Association of Snow Travelers (VAST) Corridor Trail #9 E & W travels along the western boundary of Sweet Pond State Park on the Old County Road. This road is not a town right-of-way. This section of Corridor Trail #9 is maintained by the local snowmobile club named the Guilford Pit Stoppers.





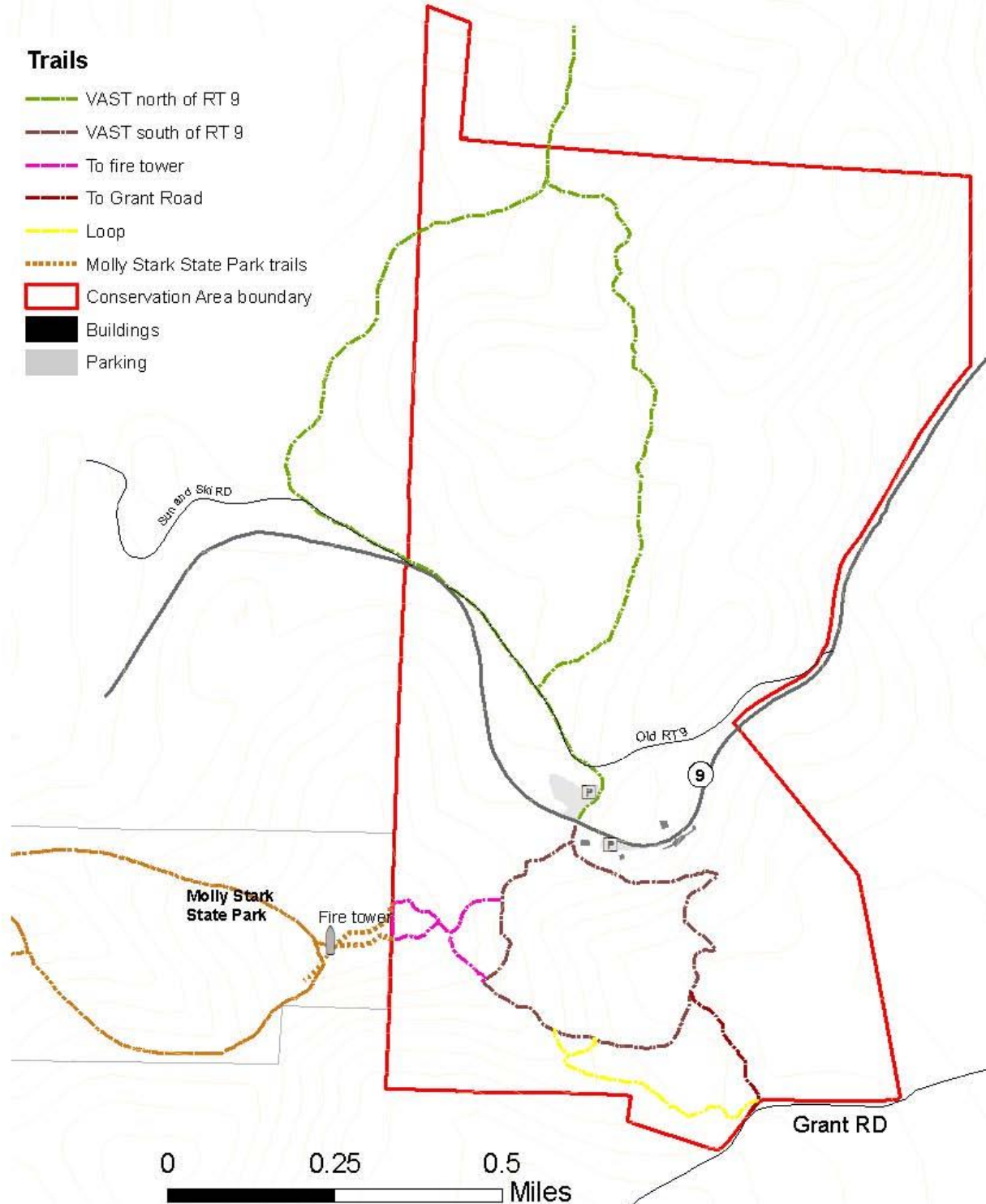








## Hogback Mountain Conservation Area Trails



## **Appendix F: Relationship to Town and Regional Planning**

### **Relationship to Region**

The long-range management plan for all four units of the Brattleboro Management Unit is consistent with the rural lands, natural resources, and community resources policies within the current Regional Plan developed by the Regional Planning Commission.

#### ***Dutton Pines State Park*** – Dummerston

Goals and policies within the Dummerston Town Plan support both the continuation of the status quo at Dutton Pines, its conversion to a town recreational parcel or its use for affordable housing. While an overriding goal is to “promote a land use pattern...that maintains a rural character,” the plan speaks to providing housing for all income levels and focusing development on already developed areas.

Important points in the Dummerston Town Plan as related to Dutton Pines State Park include:

- support for forestry and the forestry economy
- protection of public investments
- limits to development in “wellhead protection” areas
- improvement of existing recreational areas, including Dutton Pines State Park

#### ***Fort Dummer State Park*** – Vernon

Objectives for Fort Dummer State Park are compatible with the primary objectives in the Vernon Town Plan that includes:

- maintenance of a rural character
- protection of public investments, continued use of woodlands for forestry
- protection of sensitive areas (such as the banks above Broad Brook)
- continued diverse economic opportunities for forest management

#### ***Fort Dummer State Park and Sweet Pond State Park***– Guilford

Guilford’s Town Plan and management goals for Fort Dummer State Park and Sweet Pond State Park are compatible. Important connections between town and ANR goals for these parcels include:

- maintenance of historic settlement patterns
- preservation of large tracts of undeveloped woodland
- protection of significant historic and natural resources
- preservation of important forestland and wetlands and the promotion of forestry and recreational opportunities on woodlands
- promotion of an abundance of wildlife associated with a diverse and productive forest

Notable in the town plan and an important consideration is that the Town's largest waterbodies, Sweet Pond and Weatherhead Hollow, are owned and managed by the Agency of Natural Resources. Both parcels are located in conservation zones in the proposed land use map of the town plan.

### ***Molly Stark State Park*** – Wilmington

Management goals of Molly Stark State Park are compatible with the Wilmington Town Plan; however an important consideration is the focus on scenic resources in the town, particularly on rural hillsides. This relates to the importance of tourism in this region. Aesthetics from a distance and along Route 9 will be important considerations in conducting forest management and park improvements.

Broad goals of the Wilmington Town Plan include:

- maintaining a compact village and rural countryside
- maintenance of aesthetics of forested hillsides and mountains
- “protection of unique natural areas from uses that would significantly alter their scenic, educational, or scientific values”
- protection of aquatic habitat from disturbance associated with poor forestry practices
- promotion of economic opportunity in forestry
- that timber harvesting follow a prepared plan that aims for sustainability

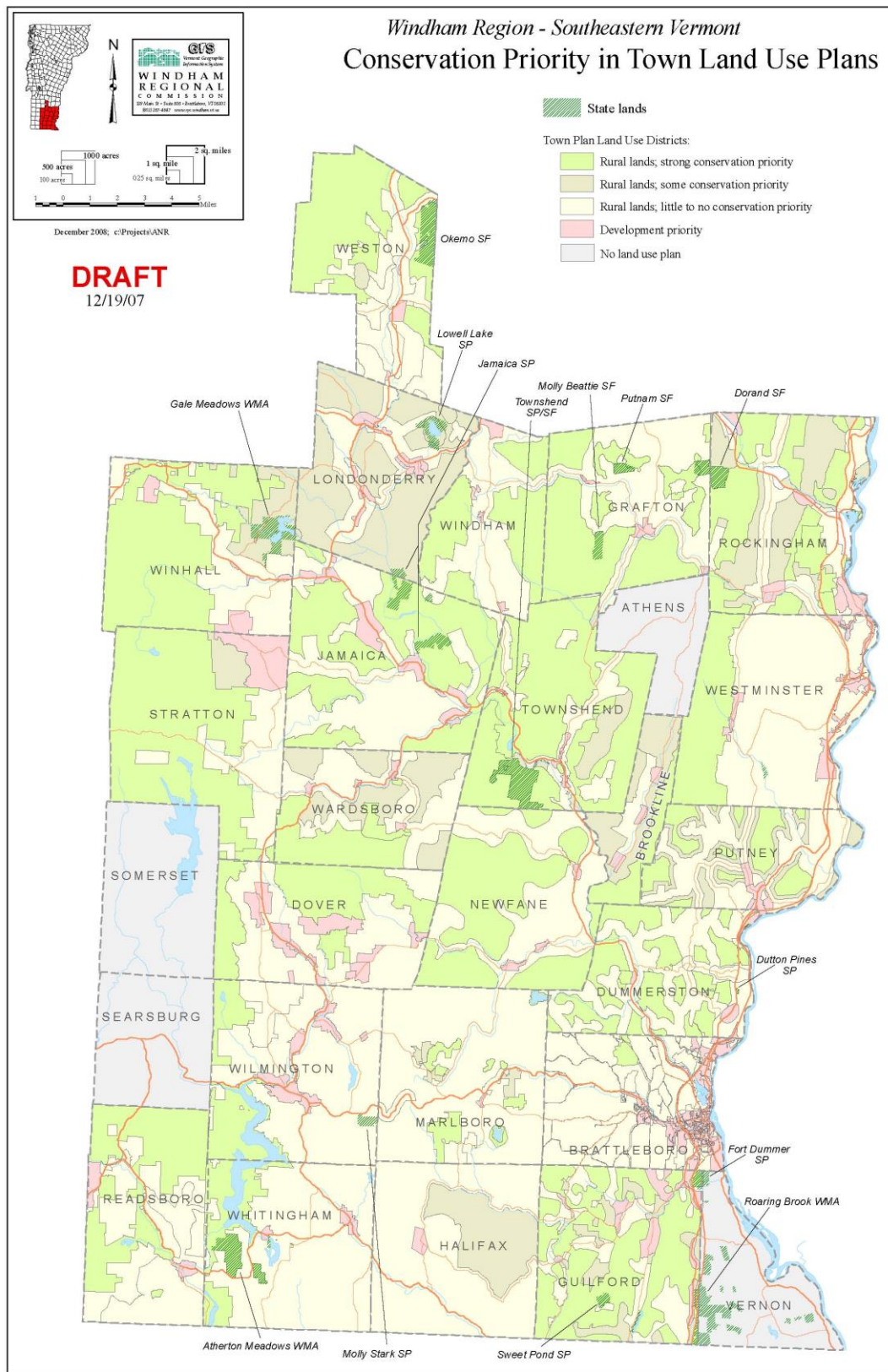
## **Regional Conservation Context**

In 2007 FPR participated with the Windham Regional Commission (WRC) in a mapping project designed to demonstrate the context of public and private lands of town plans and zoning.

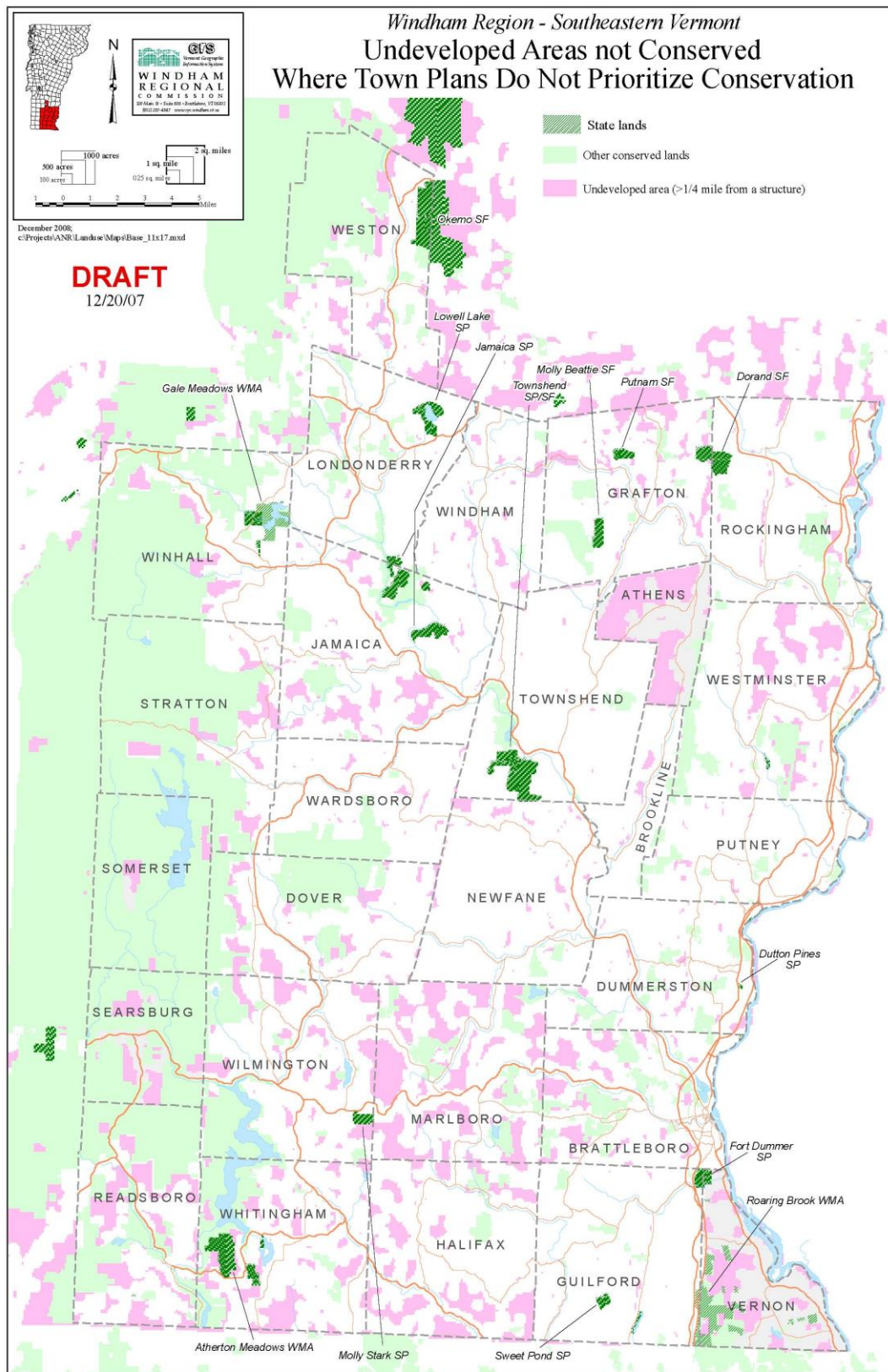
These maps demonstrate that Dutton Pines State Park and Fort Dummer State Park are located in comparatively developed areas with little to no conservation priority (page 117).

Sweet Pond State Park stands out as a parcel anchoring a large area of undeveloped, unconserved land in an area where local plans and zoning prioritize conservation of undeveloped land (page 114).

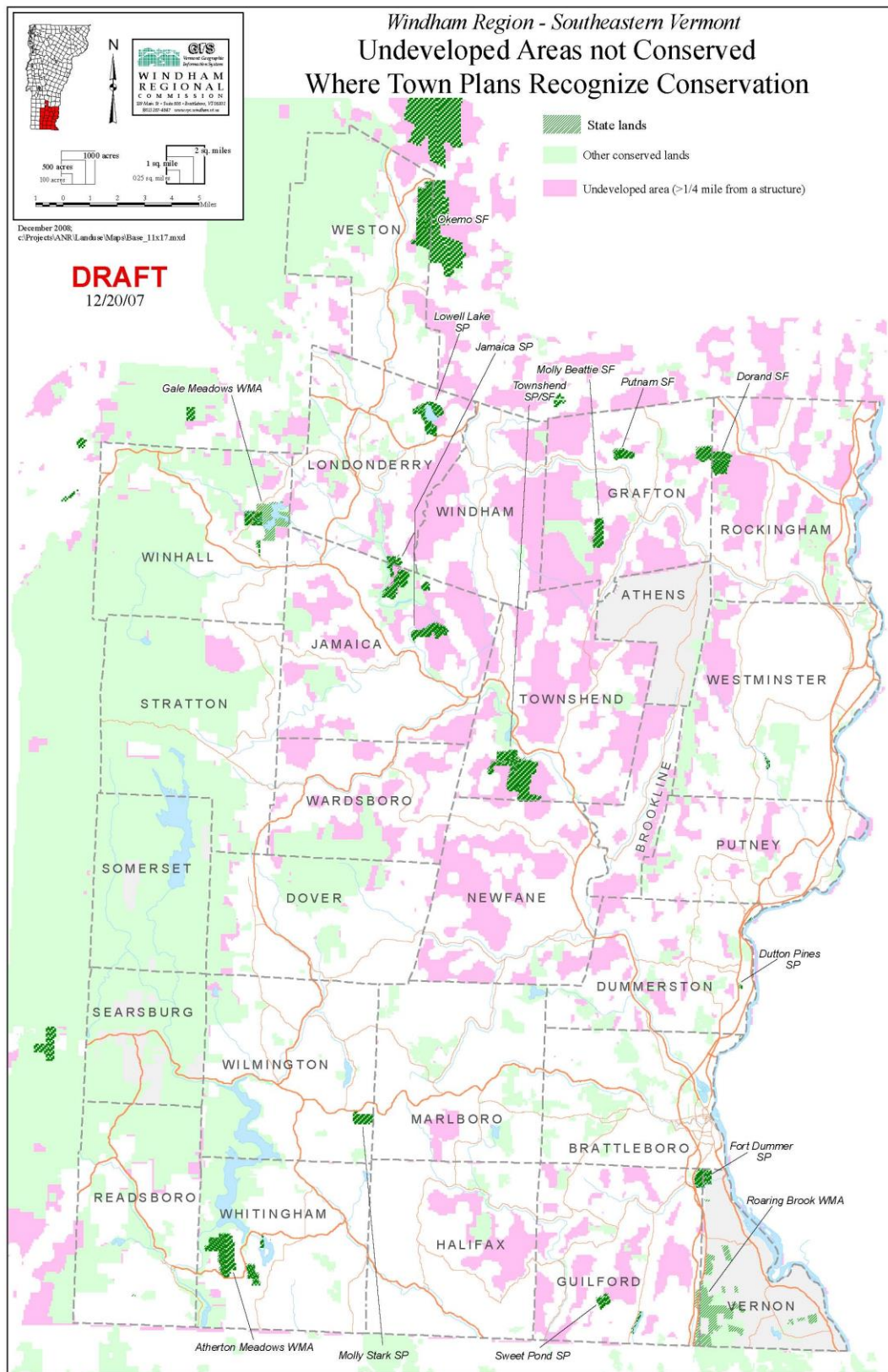
While Molly Stark State Park is adjacent to a forested area that has recently had tremendous public attention and local efforts at conservation (Hogback Mountain), this public interest is not specifically reflected in town plans (page 118).











## **Appendix G: Timber Assessment, Stand/Soil Maps and Inventory Summary**

### **Dutton Pines State Park**

The forest here is a mix of older planted and natural trees between 80 and 120 years old. White pine is the most common tree species (66%) followed by red pine (11%). Northern red oak, sugar maple, and black locust are an occasional species. Trees are often low quality for timber, and there is evidence of some common tree rot fungi in white and red pine. Regeneration is abundant hardwood of various species but most commonly black birch, red maple, and beech. Invasive exotic shrub species are found in a few locations. Deer browsing is limited and the operability of the site is excellent with well-drained soils and easy access. Easements for wells, a monitoring station, and the presence of historical structures will be a challenge to timber management as will the ability of one disease present, *Fomes annosus*, to spread from stumps of cut trees to roots of live trees.

Past management has included occasional thinnings and brush cutting. The highly visible location, a residential area along Route 5, has made it difficult to manage aggressively which has contributed to the build up of tree disease.

While the soils are productive and the trees on average healthy enough to continue managing, the presence of structures, easements, residential areas, and tree disease will be a challenge to timber management.

However, the parcel's historical significance, visual appeal, and location provide an opportunity to demonstrate high quality stewardship in a highly visible setting.

### **Fort Dummer State Park**

Forest stands at Fort Dummer State Park range from areas of young small size hardwood to large, older softwoods. Major species include white pine, hemlock, red oak and red maple, all of varying timber quality. Soil productivity ranges from low to high. The poorest sites, dry and shallow soils, grow an uncommon community type known as Dry Oak Forest. Regeneration is typical for a mixed composition in southeast Vermont; a mix of hemlock, black birch, white pine, beech, and glossy buckthorn. Access from the park is excellent but very poor from areas abutting Broad Brook Road to the south due to steep, unstable banks, streams, and Broad Brook itself.

Within the forested portion of the park exists a cleared right-of-way for underground sewer pipes running from the I-91 Welcome Center to Brattleboro's Sewage Treatment Plant as well as numerous park buildings. All will require special consideration when conducting forest management.

For timber management, the most productive and appropriate lands are those of site class I and II on operable, accessible ground. Impediments to success include steep, unstable banks and the potential for harvesting to result in a rapid spread of the invasive exotic shrub, glossy buckthorn.

Loss of hemlock within the park and forest stands due to potential defoliation by hemlock woolly adelgid is a serious concern.

### **Molly Stark State Park**

Typical for the higher elevations of Windham County, Molly Stark State Park forest stands are a mix of northern hardwood stands and spruce-fir. Common tree species include sugar maple, red maple, white ash, yellow birch, red spruce, and balsam fir. Soils are typically stony and wet or shallow to bedrock and steep. Imperfect soils, high elevation, a history of storm damage, and a major defoliation by the saddled prominent caterpillar in the 1980s have created a forest of poor quality, low vigor trees. Severe ice damage in 2008 has made the situation worse. Long-term production of quality sawtimber would be best achieved here by beginning the regeneration phase of management. This will be made more difficult by the abundance of low quality beech and striped maple already found in the understory, the poor access to the forest stands, the proximity of park facilities, and a hiking trail that traverses most of the forest.

Scheduling forest management in winter time will minimize impact to soils and park visitors though it will interfere with the regeneration objective. Patch clearcuts of two to three acres in size will be needed to get a diverse mix of mature tree regeneration though these will have to be located carefully. Stream and trail buffers will be necessary to protect scenic values within the park.

### **Sweet Pond State Park**

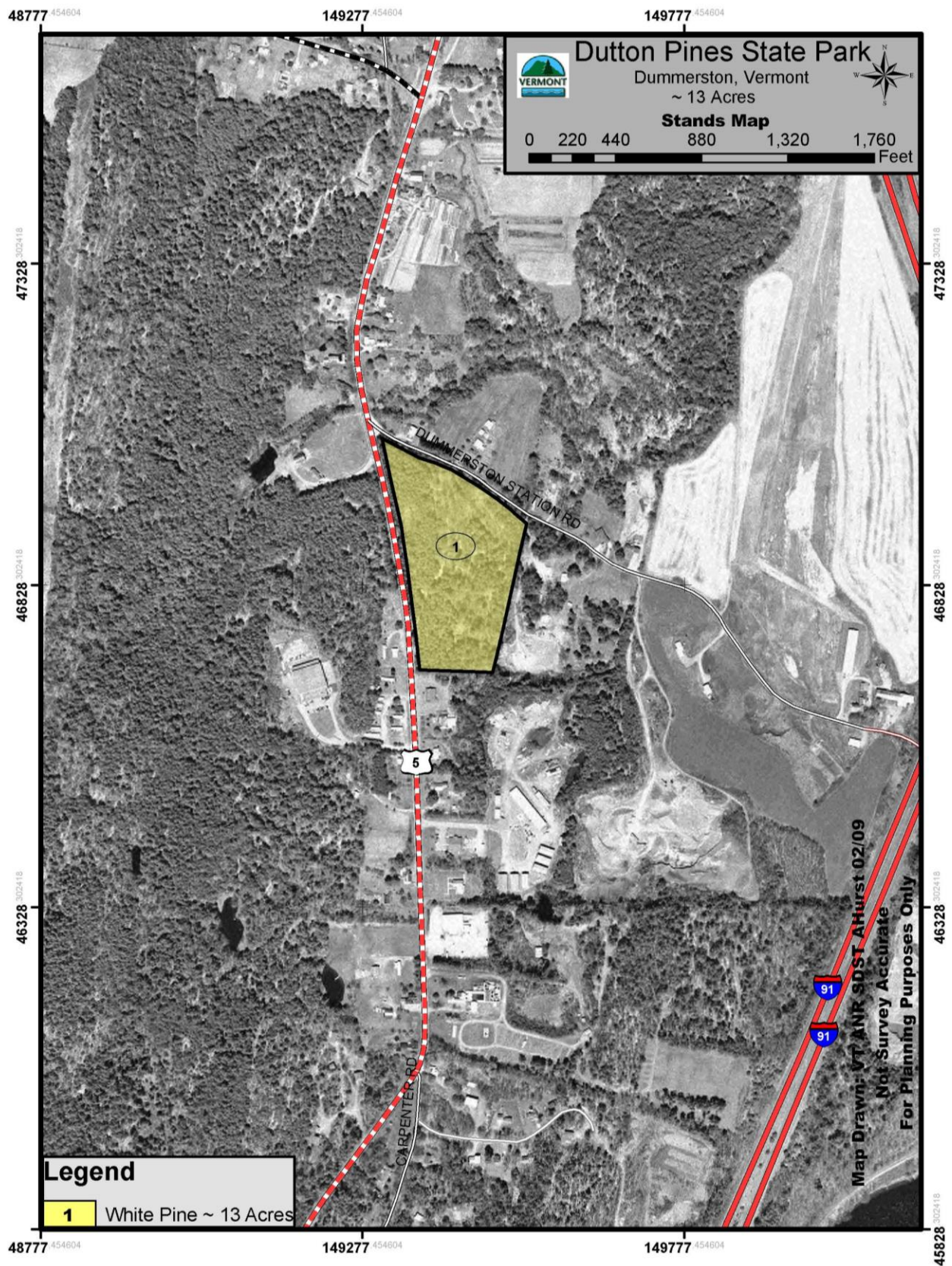
Forest cover at Sweet Pond State Park is comprised of a mix of coniferous and deciduous species. The most dominant species are hemlock, white pine, red oak, and sugar maple. Found in lesser numbers are black birch, hickory, red pine, black cherry, white birch, and white ash. Overall, timber quality is very good with high potential to grow timber crops. Other than stem decay in areas of older pine and low vigor in red pine, health of individual trees is good. Site quality ranges from highly productive to steep side hills with poor soils. Regeneration is generally limited or of poor quality. Stand 6, on the east side of the parcel, has the best regeneration, mainly black birch and white pine in openings from past harvesting. Most of the parcel is accessible and operable. Several excessively steep slopes or wet areas are inoperable.

The parcel is well suited to timber management, wildlife habitat improvement, and dispersed recreation.

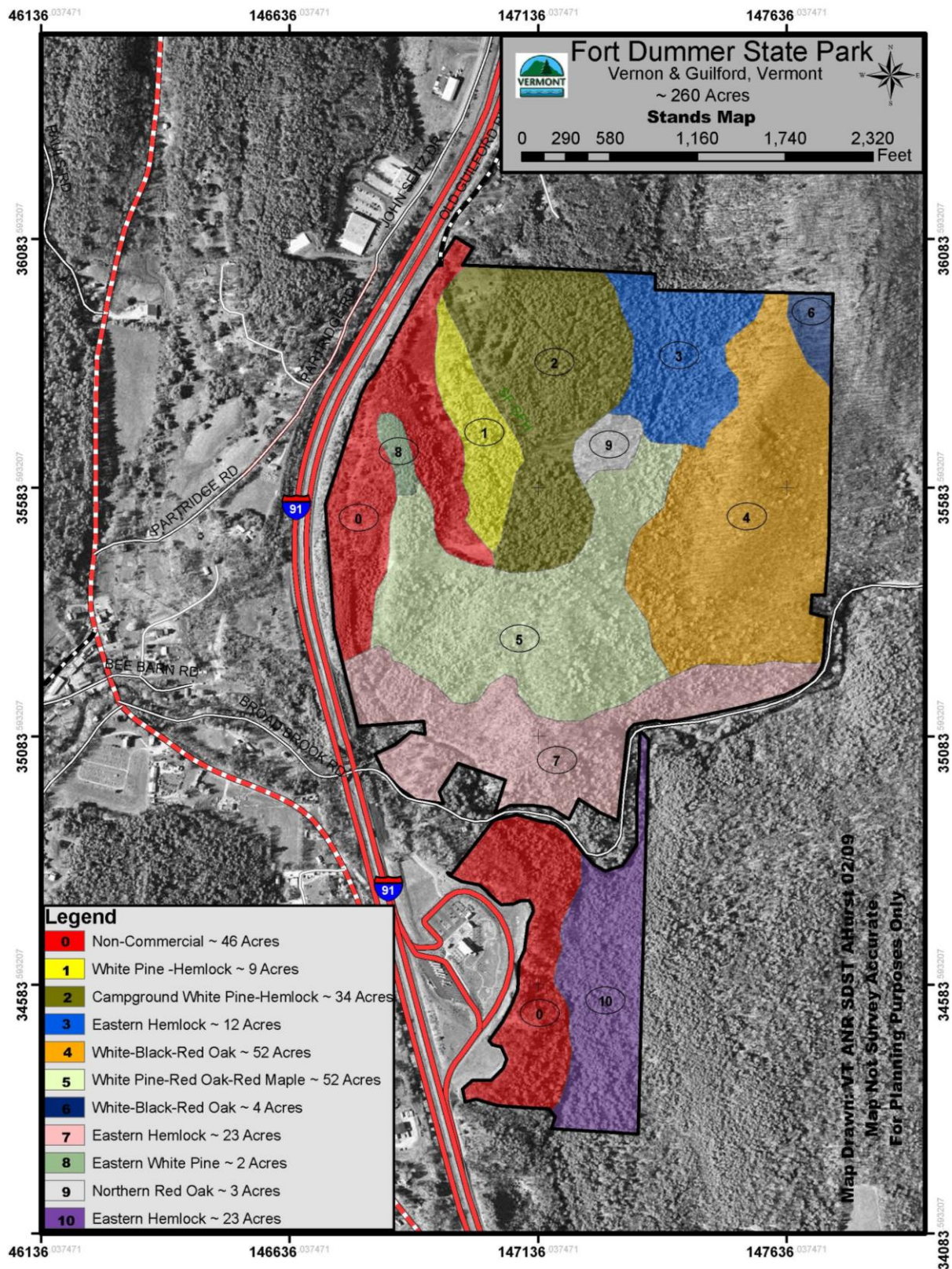
Significant features are a popular hiking trail around Sweet Pond, and older scenic stand of hemlock on the east shore, and important wildlife habitat that includes softwood cover and abundant mast trees (oak and hickory).

Timber management could conflict with hiking and shoreline aesthetics if not carefully executed. Aesthetics could be compromised at the park entrance due to the unstable nature of the red pine plantation with or without management. While exotic shrubs are uncommon today, this could easily change in this management period. Like all hemlock in southeastern Vermont, hemlock stands are threatened by the likelihood of infestation by hemlock woolly adelgid.

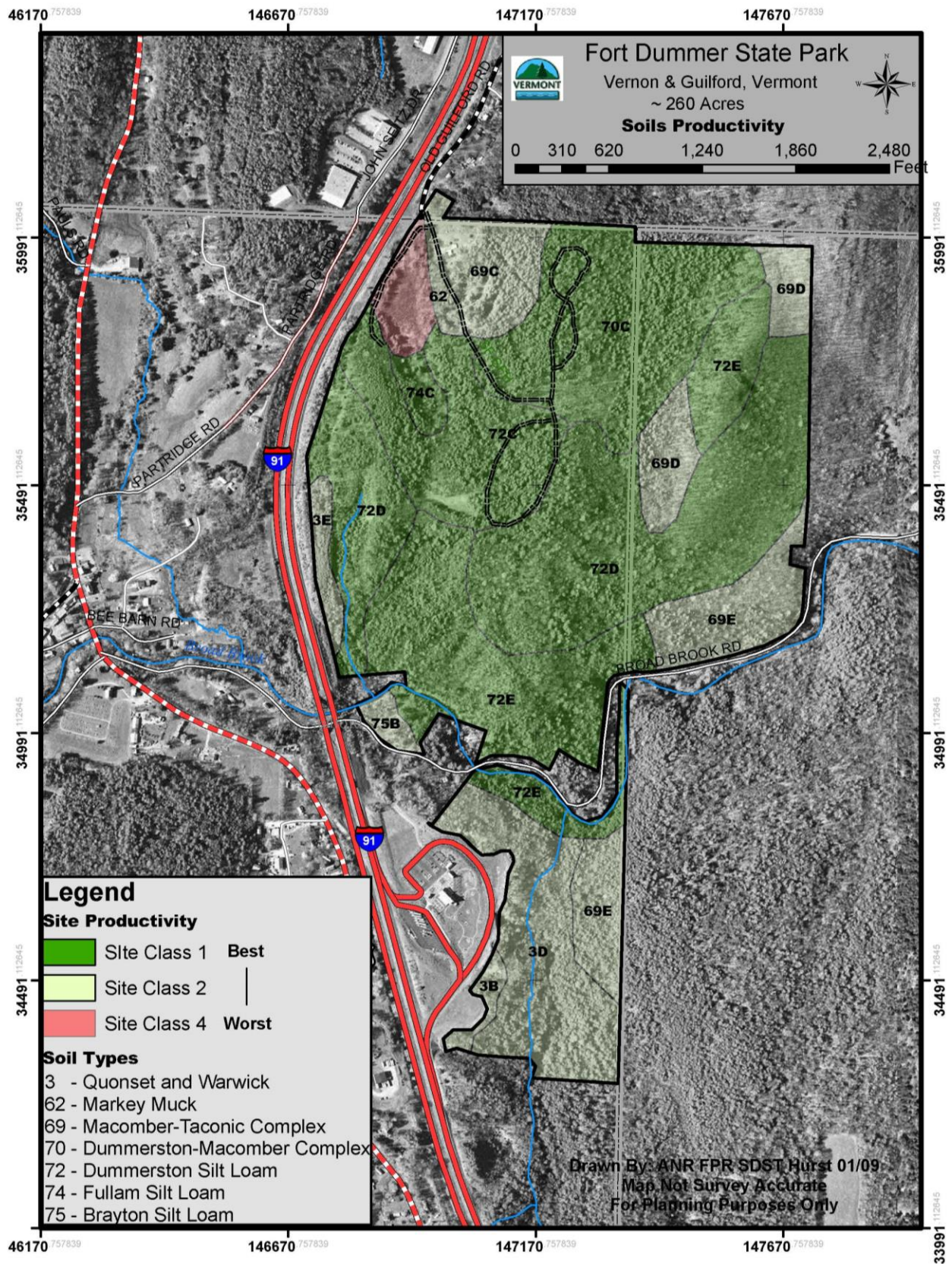




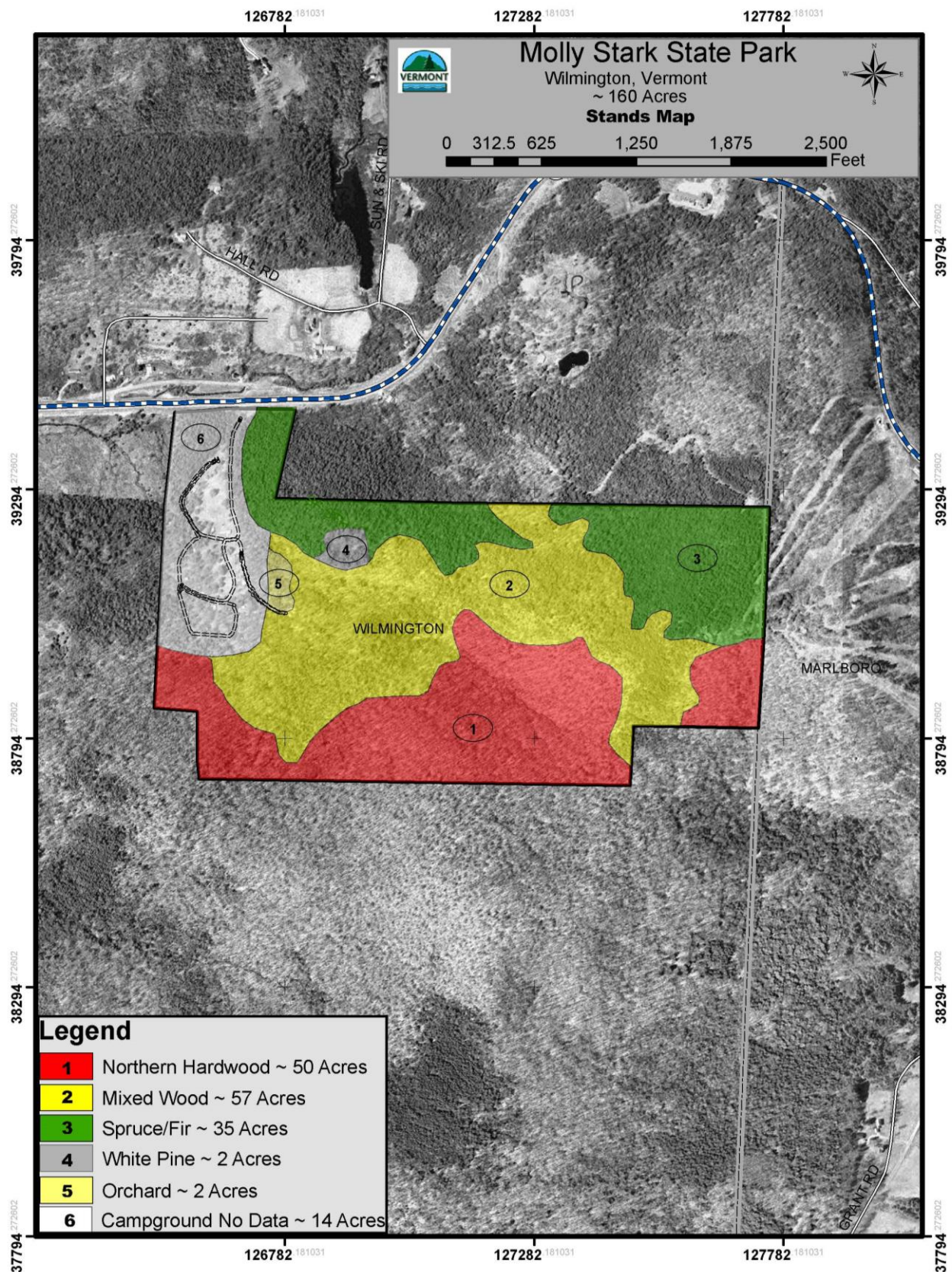




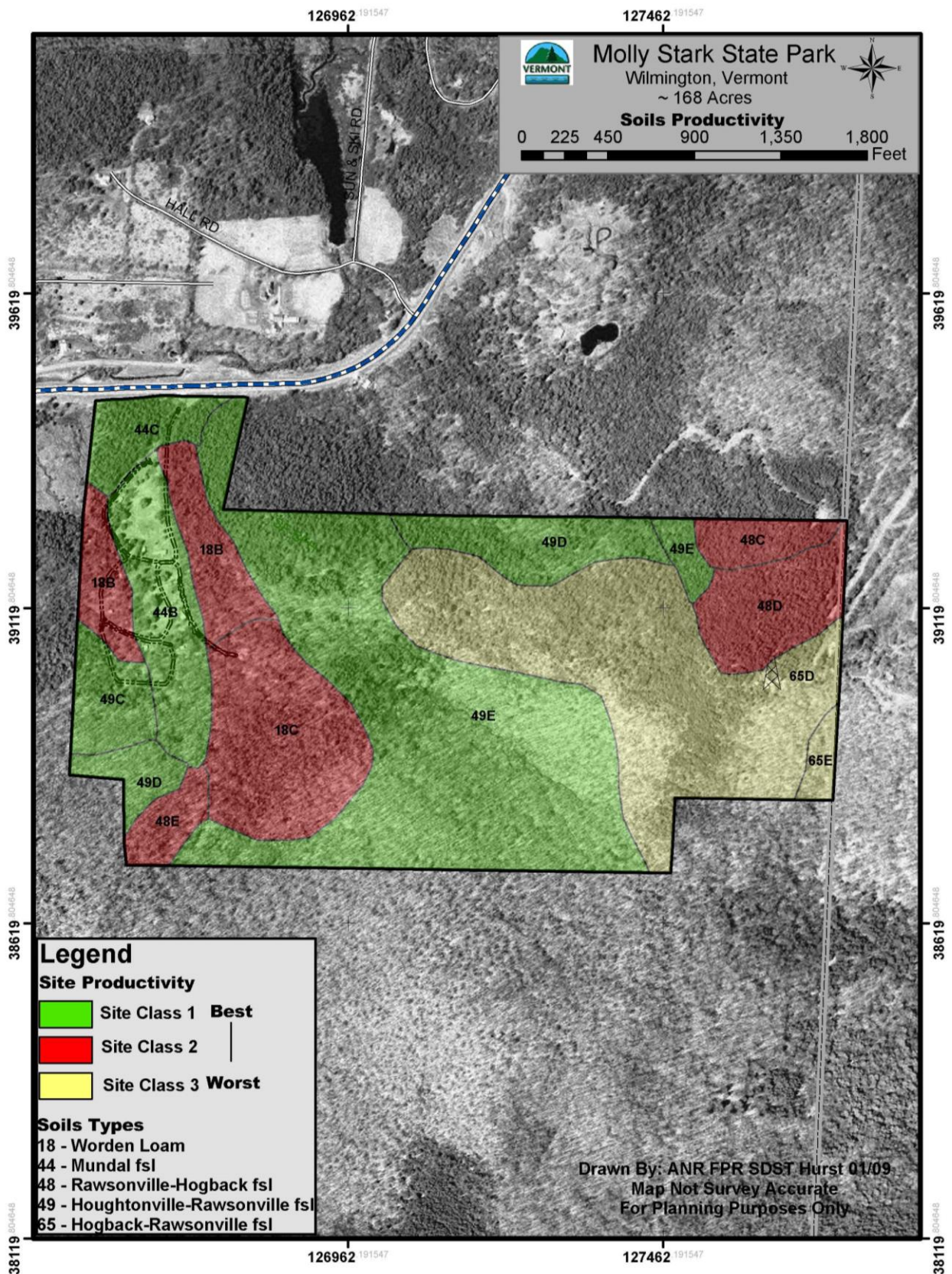




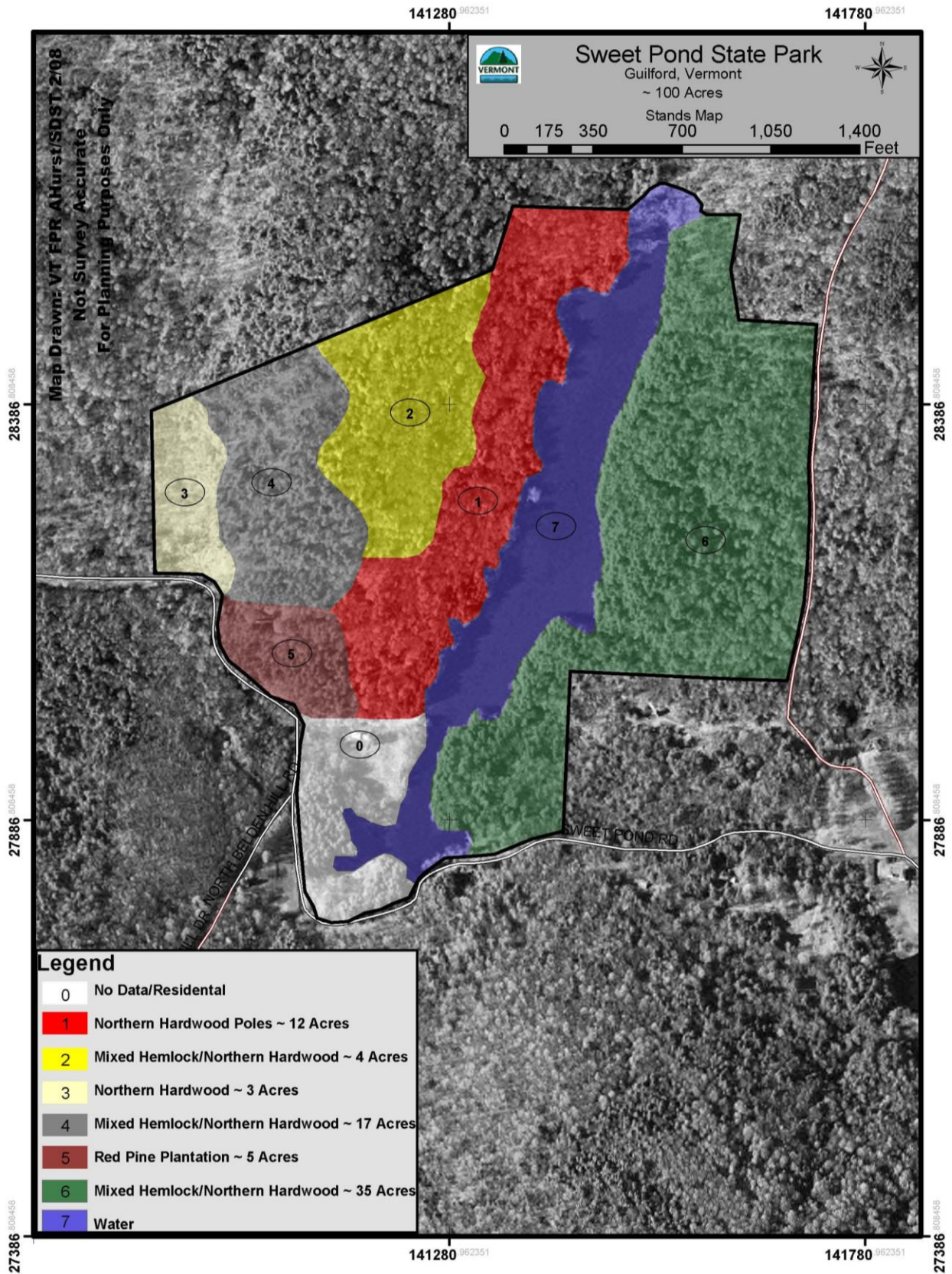




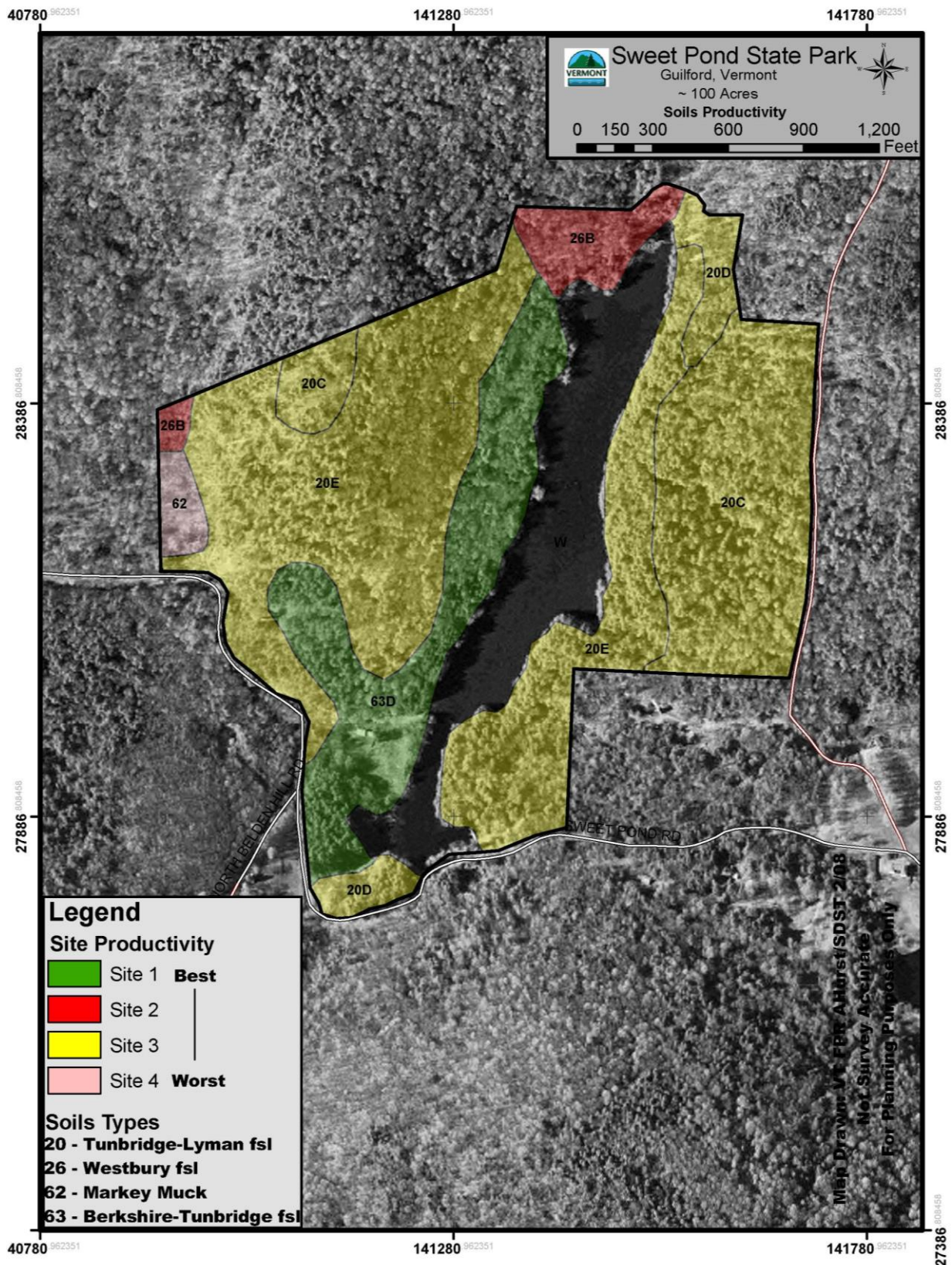














## TREE/FOREST STAND DATA SUMMARY – BRATTLEBORO MANAGEMENT UNIT

### *Dutton Pines State Park*

Parcel/ Stand	Acres	MSD	Total BA/ Dominant Codominant BA	AGS	UGS/Cull	Site	Timber Type	Composition	Volume/ Acre	Regeneration – Understory Condition	Recommended Treatment at Time of Inventory/ Notes
1	15	18.2	155.5 (Total)	90	65.5	1	White Pine (21)	White Pine 66 Red Pine 11	16.9 MBF/Acre 18 Cords/Acre	Beech/Striped Maple/Black Birch - NFG	Thinning to B Level.

# TREE/FOREST STAND DATA SUMMARY – BRATTLEBORO MANAGEMENT UNIT

## Fort Dummer State Park

Parcel/ Stand	Acres	MSD	Total BA/ Dominant Codominant BA	AGS	UGS/Cull	Site	Timber Type	Composition	Volume/ Acre	Regeneration – Understory Condition	Recommended Treatment at Time of Inventory/ Notes
1	9	10.0	140/110	7.5	132.5	1	White Pine- Hemlock (22)	White Pine 77.5 Hemlock 30.0	2.9 MBF/Acre 4.1 Cords/Acre	50% adequate, NFG Hemlock-Pine 50% Inadequate	None made.
2	34	Campground – no data.									
3	12	10.0	160/130	30	130	2	Eastern Hemlock (23)	Hemlock 73.3 White Pine 16.7	5.3 MBF/Acre 4.4 Cords/Acre	50% sapling NFG Hemlock 50% Inadequate	None made.
4	52	10.7	82.5/60	28.8	53.8	1/3	White-Black- Red Oak (52)	Red Oak 28.8 Red Maple 21.3 White Oak 17.5	2.9 MBF/Acre 2.2 Cords/Acre	38% Sapling NFG 47% Inadequate	None made.
5	52	11.6	129.3/90	39.3	90.0	1	Pine-Oak (20)	Hemlock 44 White Pine 18 Red Oak 18	5.2 MBF/Acre 3.5 Cords/Acre	Beech w/some Hemlock & White Pine sapling NFG Hemlock, Pine, Beech, Red Maple	Harvest mature Oak and Pine to release saplings and poles.
6	Site IV land – no data collected.										
7	Inoperable steep side hill – no data collected.										
8	2	White Pine pole stand, overstocked, no data collected.									
9	3	Oak pole stand, overstocked, no data collected.									
10*	13	11.5	166 (Total)	71	95	2 & 3	White Pine- Hemlock (22)	Hemlock 55 White Pine 22 Oak sp. 13	9.4 MBF/Acre 16 Cords/Acre	Hemlock, Beech, White Pine, Mountain Laurel, NFG	Selection to salvage White Pine and release Hemlock.

\*AOT mitigation land east of Welcome Center.

## TREE/FOREST STAND DATA SUMMARY – BRATTLEBORO MANAGEMENT UNIT

### *Molly Stark State Park*

Parcel/ Stand	Acres	MSD	Total BA/ Dominant Codominant BA	AGS	UGS/Cull	Site	Timber Type	Composition	Volume/ Acre	Regeneration – Understory Condition	Recommended Treatment at Time of Inventory/ Notes
1	50	12.6	125.9/100	86.5	39.4	1/3	Northern Hardwood (25)	Sugar Maple 52 White Ash 23 Red Maple 9	4.5 MBF/Acre 10 Cords/Acre	Advanced Striped Maple & Beech	Patch clearcuts, 2-3 acres each. History of ice damage. Hiking trail in stand.
2	57	9.7	126.0/99	87.0	39.0	1/3	Red Maple (108)	Red Maple 43 Red Spruce 15.1 Black Cherry 10.3	3.2 MBF/Acre 10 Cords/Acre	Overall poor – Red Spruce, Balsam Fir, Beech & Striped Maple	Will require cautious management due to hiking trail & streams.
3	35	8.5	115.6/96	76.7	38.9	1/2	Spruce-Fir (34)	Red Spruce 39 Red Maple 21.2 Balsam Fir 19.2	3.7 MBF/Acre 7.5 Cords/Acre	Patches of Red Spruce & Balsam Fir	Overstory in decline. Group selection to release conifer saplings. Suited to mechanical harvest.
4	2	17.6	130.0/120	70.10	60.0	1	White Pine (21)	White Pine 53.8 Yellow Birch 15.4	7.6 MBF/Acre 15 Cords/Acre	Limited	Thinning for tree vigor and aesthetics. Close to park.
5	Apple orchard – No data.										
6	Campground – No data.										

## TREE/FOREST STAND DATA SUMMARY – BRATTLEBORO MANAGEMENT UNIT

### *Sweet Pond State Park*

Parcel/ Stand	Acres	MSD	Total BA/ Dominant Codominant BA	AGS	UGS/Cull	Site	Timber Type	Composition	Volume/ Acre	Regeneration – Understory Condition	Recommended Treatment at Time of Inventory/ Notes
1	12	11.3	110.0/94	71.3	38.8	1	Northern Hardwood (25)	Sugar Maple 50 White Ash 14.8 Red Oak 12.5	3.0 MBF/Acre 7.2 Cords/Acre	Mixed – generally Beech- Striped Maple	Crop tree release of timber and wildlife mast trees.
2	4	13.6	110.0/100	90.0	20	3	Oak- Hemlock (55)	Red Oak 54.5 Hemlock 27.3	6.1 MBF/Acre 11.3 Cords/Acre	Limited – poor	None – excessively steep rocky ground.
3	3	11.0	86.7/77	50.0	36.7	2/3	North Hardwood (25)	White Ash 57.7 Red Oak 19.2	1.4 MBF/Acre 8.9 Cords/Acre	Limited – poor	Crop tree release, wet ground.
4	17	13.6	133.3/102	91.7	41.6	2/3	White Pine- Hemlock (11)	Hemlock 37.5 White Pine 18.8 Red Oak 16.3	8.1 MBF/Acre 5.5 Cords/Acre	Limited – poor	Selection harvest, shallow soil, windthrow potential.
5	5	14.8	137.5/130	97.5	40	1	Red Pine Plantation	Red Pine 67.3 White Pine 14.5 Sugar Maple 10.9	21.7 MBF/Acre 1.63 Cords/Acre	Advanced poor quality Northern Hardwood	Aesthetic thinning. Park entrance. Some evidence of disease in Red Pine.
6	35	15.1	149.0/105	41.0	108	1	Eastern Hemlock (23)	Hemlock 51.0 Sugar Maple 8.7	7.9 MBF/Acre 6.3 Cords/Acre	Advanced, not free to grow Black Birch, Striped Maple, Beech	Single tree and group selection. White pine trees show evidence of decline/ decay.

## **Appendix H: Brattleboro Management Unit Wildlife Assessment**

### **Fort Dummer State Park**

Fort Dummer State Park supports many unique wildlife habitats.

Key Mast Production: The high basal area of red, white, and black oak in stands 4, 5, and 9 provide critical mast (food) for many wildlife species. The fact that the three different oak species exist here together increases the area's value for wildlife because the three species may often produce heavy acorn crops (mast) in different years. Therefore, the distribution of available mast may be spread over a period of years. Many common wildlife species occur in the area including turkey, deer, gray squirrel, and many small mammals as well as the predators that rely on them for food such as coyote, bobcat, and fisher. Several researchers have shown a link between high years of mast production and increased populations of many wildlife species including bear, marten, fisher, deer, turkey, and small mammals.

These stands exhibit evidence of negative impacts from previous gypsy moth (*Lymantria dispar*) infestations, and there continues to be the potential for additional infestations in the future. In addition, as development pressure increases in areas surrounding the property and fragmentation increases, the risks to both the habitat and the wildlife will increase as well. Management through cutting may also increase the potential for invasive plants such as glossy buckthorn to degrade the area. Overbrowsing by deer will negatively influence oak regeneration potential.

Critical Deer Wintering Habitat/Hemlock Cover: A large portion of Fort Dummer State Park is hemlock or hemlock hardwood. In the park proper, there is historical evidence of browsing and barking by wintering deer, although recent evidence is limited. However, the proportion of hemlock in stands 3 and 5 is high (73% and 44%, respectively), and the potential for supporting wintering deer is excellent. Red and white oak are also common in both stands providing an excellent combination of fall/winter food source and winter cover. The hemlock/hardwood stand on the mitigation land south of the park is presently functioning as deer wintering habitat. In addition to deer, other species that may be found using the area are bobcat, fisher, coyote, red squirrel, red-breasted nuthatch, black-throated green warbler, red-backed vole, and porcupine.

Risks to these areas include the common buckthorn prevalent in the understory and the possibility of infestation by the hemlock woolly adelgid in the near future.

Wetlands/Seeps/Vernal Pools: A vernal pool exists in stand 4 and a red maple/black ash seep in stand 3. Neither site has been thoroughly sampled but one or more sites could support common species such as spotted salamander, wood frog, and northern dusky salamander. In addition, special concern or listed species such as Jefferson salamander species and eastern ribbon snake have been found in surrounding sites (see Appendix C). Threats to these areas include impacts from invasive plants and changes in hydrology caused by logging or trail systems.



The riparian forests along Broad Brook and the smaller feeder brook on the mitigation lands provide important habitat for amphibians, otter, and mink as well as travel corridors for additional species such as fisher and bobcat.

### ***Molly Stark State Park***

Bear Habitat: Much of Molly Stark State Park functions as bear production habitat meaning that there are resident female black bears utilizing the park and the habitat surrounding it. Stand 3 functions as cover for black bear and should be managed to promote the spruce-fir component.

Threats include loss of adjacent habitat due to development and fragmentation. Molly Stark State Park will only support black bears as long as it maintains continuity with undeveloped adjacent habitats in the region.

Key Mast Production: Stand 2 contains black cherry (10%), red oak (1.6%), and scattered apple trees that provide mast for black bears, turkeys, many songbirds, and other wildlife. Stand 5 is an apple orchard, and a small stand of hardwoods and red oak exists at the higher elevations in stand 2.

Early Successional Habitat: There is very little early successional habitat in the Green Mountain biophysical region. The spruce-fir area may provide important habitat for snowshoe hare. In addition, early successional habitat in stand 1 could improve the area for black bear (assuming the cuts are placed in areas that do not include mast-producing trees).

### ***Sweet Pond State Park***

Hemlock Cover/Deer Wintering Habitat: Although the land around Sweet Pond State Park is not mapped as deer wintering habitat, the hemlock and hemlock/hardwood forest (stand 2, 4 and 6) on the property may function as deer wintering habitat in the future. In addition, it provides habitat for a wide variety of other wildlife species including fisher, bobcat, coyote, hermit thrush, black-throated green warbler, red squirrel, and others. Risks to these areas include hemlock woolly adelgid, overbrowsing of understory by deer, fragmentation of adjacent habitats, and introduction of invasive plants.

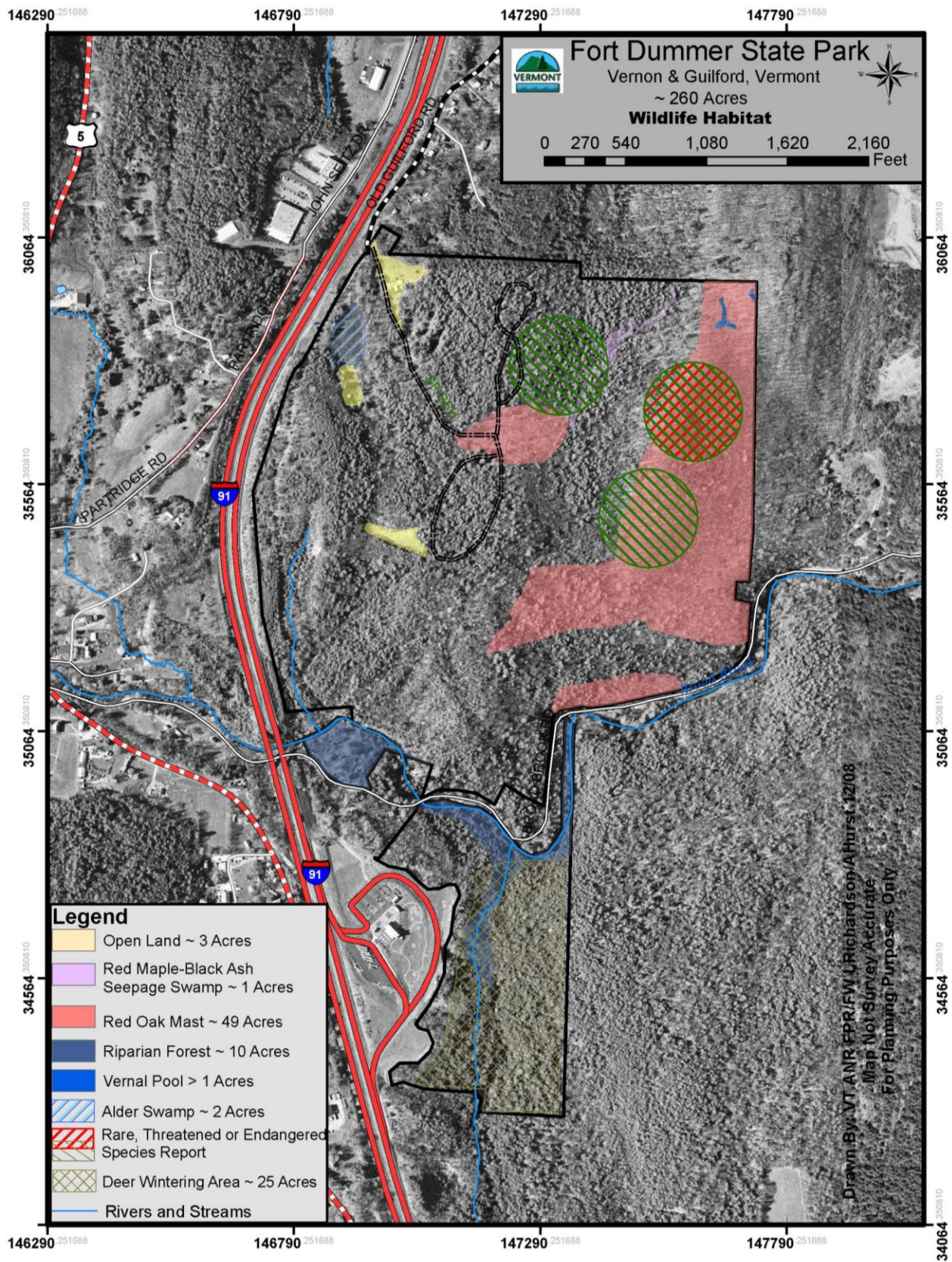
Key Mast Production: Stand 2 has a very high percentage of large (>14" DBH) oak as well as some hickory. Stand 1 has oak cherry and ash, and stand 4 has beech (13%), red oak (16%), and cherry (1.3%). These stands can potentially support many wildlife species including turkey, deer, black bear, small mammals, gray squirrel, forest interior songbirds, and others.

Threats include the increase of invasive plants in the understory, fragmentation of adjacent habitats, and overbrowsing by deer.

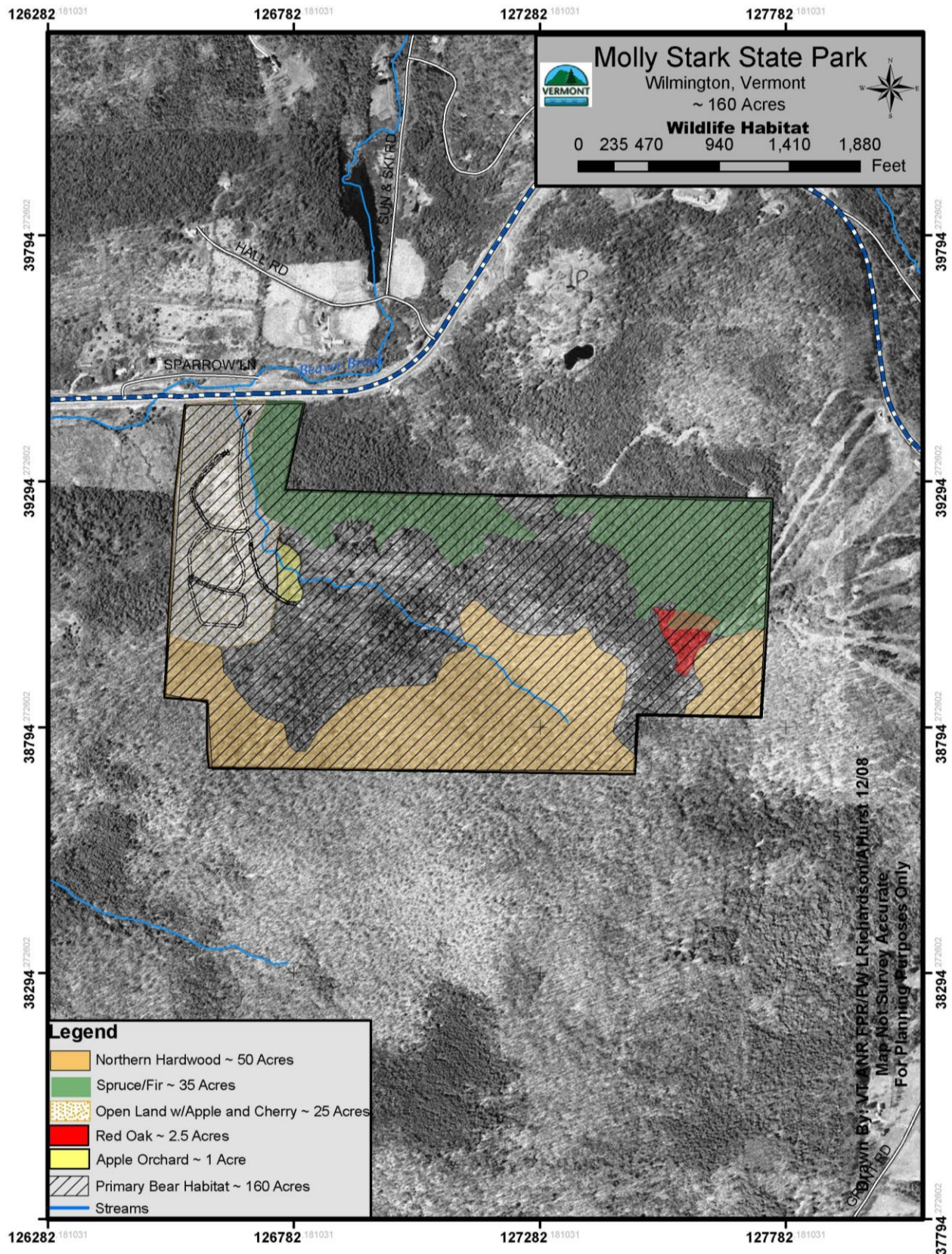
Wetlands: Sweet Pond itself and the associated wetland habitats (see natural communities section) supports mink, otter, beaver, great blue herons, king fisher, amphibians, painted turtles, and many other species. There is a record of spotted turtles at the site but none have been found

in recent years. The seep at the north end of the pond provides important habitat for turkey and black bear. Beaver have influenced the water level in both the pond and the associated wetlands.

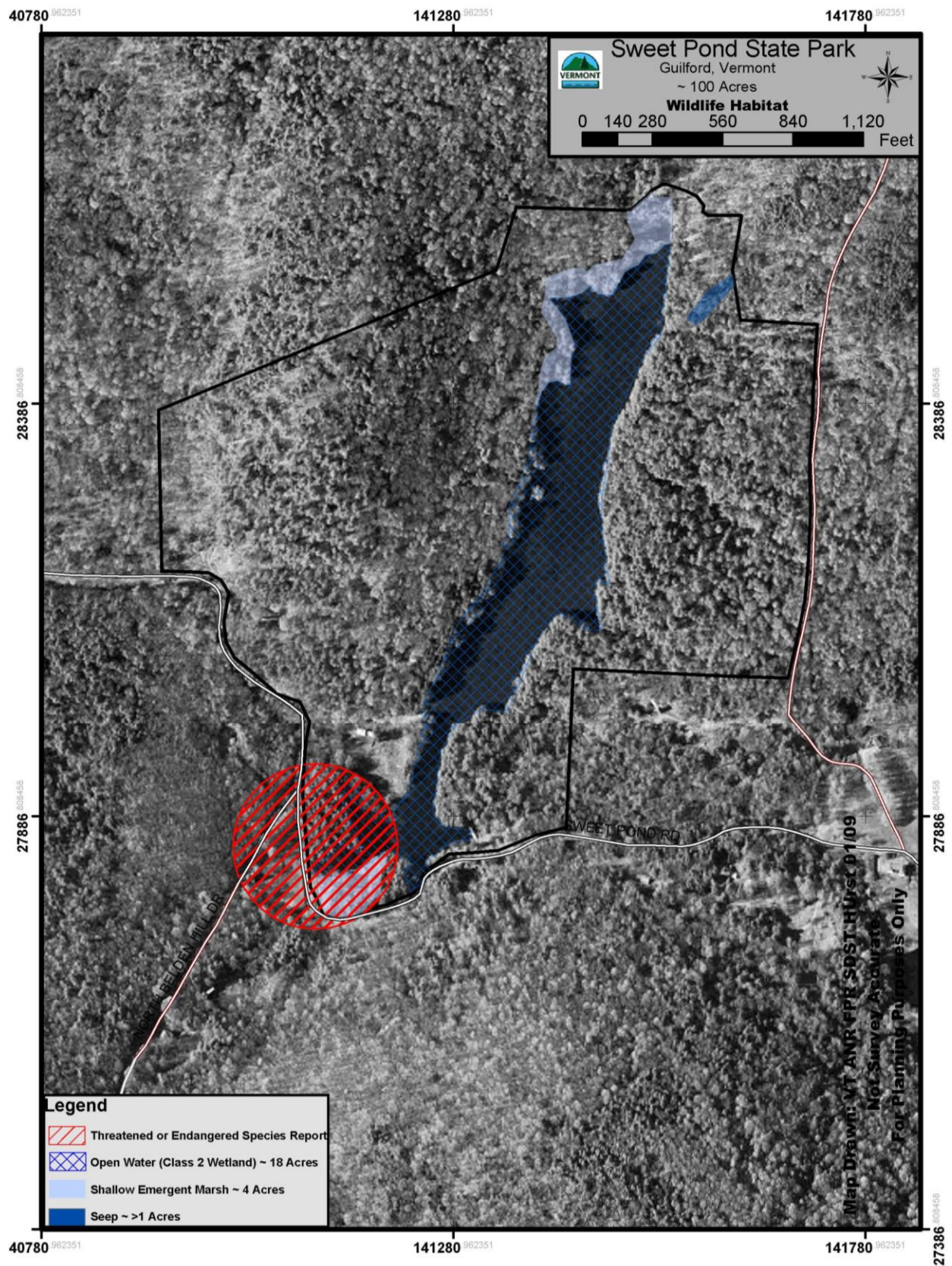
Connectivity to Core Forest/Wetlands to the North: Sweet Pond State Park sits at the southern end of a relatively large block of undeveloped habitat. Additional wetland habitats are mapped north of the park. Consider ways to maintain connectivity with the larger core forest and wetlands to the north. Identify wildlife road crossings and focus attention on habitats associated with those and stream corridors.













## **Appendix I: Aquatic Habitat and Fisheries Assessment**

The Brattleboro Management Unit (BMU) has a total combined land area of 541 acres distributed among four state parks: Dutton Pines State Park (13 acres), Fort Dummer State Park (260 acres), Sweet Pond State Park (100 acres), and Molly Stark State Park (168 acres). Aquatic habitats on these properties are primarily limited to small first and second order streams. Consequently, no stream fish population inventories have been done. However, this is not to suggest these streams lack fish communities but rather those waters having year-round flows can be expected to support simple fish communities falling under Assemblages 1-3 described in A Classification of the Aquatic Communities of Vermont. These categories are comprised of one to three species, including any of the following: brook trout *Salvelinus fontinalis*, blacknose dace *Rhinichthys atratulus*, and slimy sculpin *Cottus cognatus*.

The one exception is Sweet Pond State Park with its 18-acre impoundment and feeder streams. The pond was created before state ownership by construction of a dam on Keets Brook. The watershed above the dam measures 1.1 square miles. The pond is shallow with a maximum depth probably around 10 feet. Water chemistry was last sampled in February 19, 1980 (Clarkson 1982) as part of a study to evaluate Vermont lakes and ponds susceptibility to acidification. Under that study, Sweet Pond water was sampled at 1315 hours and a depth of 8.2 feet with the following results: pH 6.85 standard units, alkalinity 38 mg/l, calcium 17.9 mg/l, and magnesium 1.30 mg/l. The resulting calcite saturation index, a measure of lake sensitivity to acidic deposition, was computed to be 1.62 indicating Sweet Pond is stable with regard to acidic inputs. Further, geographically it is positioned in a region of the state with bedrock characteristics that provide “infinite” buffering capacity (Clarkson 1982).

Fish population sampling of Sweet Pond was done in May 1977 and June 1986 by the Vermont Fish & Wildlife Department. Experimental gill nets were set capturing largemouth bass *Micropterus salmoides* and yellow perch *Perca flavescens*. No other species were collected, but this is likely due to gear selectivity biased to larger species. Two streams that drain into the pond were also sampled in 1977; however capture method was not recorded. One stream located on the west side of the pond was found to have brook trout, American eel *Anguilla rostrata*, and brown bullhead *Ameiurus nebulosus*. The other stream entering the pond just upstream of the dam had brook trout only. An up-to-date and more thorough survey of the fish populations (species present and relative abundance) is needed; however Sweet Pond lacks trailer access to launch large boats, such as an electrofishing boat.

Keets Brook below the Sweet Pond dam was electrofished in June 1990 to assess impacts of an illegal on-stream private dam constructed a short distance downstream of the state-owned dam. That year three locations were sampled with a backpack electrofisher downstream of the state-owned dam: station 1 measured 186 feet in length below the private dam, station 2 at 100 feet was on a tributary to Keets Brook flowing into the private pond, and station 3 at 175 feet was located in the vicinity of the Sweet Pond Road crossing in a section of stream situation between the private and state-owned dams. Only two fish species were observed: brook trout and blacknose dace. Eighteen trout were collected in station 1. Thirteen were yearling and older fish

ranging in size from 94 to 183 mm, and the remaining fish were young-of-the-year (YOY) with lengths between 48 and 64 mm. Station 2 yielded seven yearling and older trout and one YOY. No trout were observed at station 3. Low numbers of blacknose dace were seen at stations 1 and 3.

Keets Brook was sampled again in September 1996. Fishes collected then included brook trout, largemouth bass, and American eel. A total of 22 trout were captured from 802 feet of stream. They ranged in size from a 55 mm young-of-the-year up to 254 mm. Average total length  $\pm$  SD for the entire sample was  $165 \pm 45$  mm. Minimum abundance estimates standardized to catchable-size ( $\geq 154$  mm) fish per mile based on a single removal pass during the 1990 and 1996 surveys at sites below the private dam are 57 and 86, respectively.

Three bass with a length range of 100 to 124 mm were captured. Because largemouth bass are not a small stream species, undoubtedly these fish originated from the upstream impoundments. Even so from a fishery management perspective, the presence of bass in a brook trout stream is viewed negatively as they may compete with and prey on young trout.

The presence of eels is of particular note, because the species is rarely encountered in eastern Vermont during fish population surveys outside of the Connecticut River and some of its larger tributaries. Five individuals were captured during the 1996 survey with total lengths ranging from 330 to 575 mm (average  $\pm$  SD:  $471 \pm 117$ ). Eel is a catadromous species meaning that portions of its life cycle are spent in both freshwater and marine environments with spawning taking place in the latter. Eels of the sizes collected in Keets Brook are juvenile female “yellow eels” residing in freshwater up to 30 years before attaining sexual maturity and returning to sea to spawn. In order for eels to get into Sweet Pond from the Connecticut River near Turners Falls, Massachusetts, they must ascend the Fall River, Shattuck Brook, and Keets Brook, a total distance 15 miles, and in the process pass four dams. One of the dams in Massachusetts breached during tropical storm Floyd in 1999. Another dam in that state was partially breached as of April 2001 with plans then for its removal.

Both brook trout (naturally reproducing populations only) and American eel are identified as species of greatest conservation need (SGCN) in Vermont’s Wildlife Action Plan (2005). Threats affecting brook trout include climate change; habitat alteration; fragmentation; pollution, including sedimentation; competition and predation from other species; diseases; and loss of genetic diversity. In their freshwater range, eels are threatened by climate change, habitat fragmentation, and pollution. Since the mid 1990s, fishery scientists have been concerned about population trends which seem to indicate a long-term decline in eel abundance throughout their range. Causes for the decline are not well understood at this time, but habitat fragmentation resulting from existing and new fish passage obstructions caused by dams and culverts has been receiving much attention. Where opportunities arise for resolving trout and eel passage obstructions, problematic structures have been removed or retrofitted with fish passage devices, including eel passes and/or replaced with structures designed to enable passage.

Future fishery management of Sweet Pond should involve current assessments of fish populations inhabiting the pond, inflowing streams, Keets Brook downstream of the dams, and identification of possible management actions to conserve or improve important species and in particular SGCN.

**References:**

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## **Appendix J: Amphibian/Reptile Assessment**

### **Amphibians and Reptiles:**

The Vermont Fish and Wildlife and Forests, Parks and Recreation Departments conducted an in-house survey of reptiles and amphibians on the Brattleboro Management Unit (BMU) during the 2007 and 2008 field season. A total of three frogs, five salamanders, zero snakes, and two turtle species were found on the BMU. No species found was uncommon or rare.

Issues/concerns: Management of amphibian breeding sites, adequate buffers and, where feasible, recolonization corridors to other breeding sites.

### **Rare amphibian/reptile species possible on the BMU:**

- Eastern Black Racer (*Colubar constrictor*) Status: S1 – The eastern black racer is proposed listed as state threatened in Vermont. These snakes are known to use the old rest area west of I-91 and north along the interstate. This is the only confirmed report of this species in the state since 1985. Fort Dummer State Park is just north of this site along the interstate and could potentially provide habitat for the black racer.
- Jefferson Salamander (*Ambystoma jeffersonianum*) Status: S2 – The Jefferson salamander is a species of special concern in Vermont. Fewer than 10 animals have been reported in Windham and Windsor since 1988. An adult was found crossing Tyler Hill Road south of Fort Dummer State Park.
- Northern Water Snake (*Nerodia sipedon*) Status: S3 — The northern water snake has a very spotty distribution in Vermont. They have been consistently found in Vernon, one of the few sites in the eastern part of the state. Sweet Pond State Park may provide the required habitat for this species though the area lacks the stones or cobbles along the shore this species prefers.
- Eastern Ribbon Snake (*Thamnophis sauritus*) S2: This species would most likely be found in emergent marshes, swamps, and vernal pools at warm sites like Fort Dummer State Park. Eastern ribbon snake has been found to the south in Vernon and to the north in Dummerston.
- Red-bellied Snake (*Storena occipitoaculata*) S2: This species has been found in four towns in the county. Most notably in Marlboro, north of Sweet Pond State Park and west of Fort Dummer State Park.
- Spotted Turtle (*Clemmys guttata*) S1: There is one report of this species from Sweet Pond State Park. Attempts to locate this species were unsuccessful. The only known viable population in the state occurs in Vernon.



## Amphibians found within the Brattleboro Management Area

Amphibians found in the BMU	Fort Dummer State Park	Sweet Pond State Park	Molly Stark State Park	Dutton Pines State Park
American Toad (S5) ( <i>Bufo americanus</i> )		X		
Spring Peeper (S5) ( <i>Pseudacris crucifer</i> )				
American Bullfrog (S5) ( <i>Rana catesbeiana</i> )		X	X	
Green Frog (S5) ( <i>Rana clamitans</i> )	X	X		
Pickerel Frog (S5) ( <i>Rana palustris</i> )	X	X		
Wood Frog (S5) ( <i>Rana sylvatica</i> )				
Spotted Salamander (S5) ( <i>Ambystoma maculatum</i> )	X	X		
N. Dusky Salamander (S4) ( <i>Desmognathus fuscus</i> )	X	X	X	
N. Two-lined Salamander (S5) ( <i>Eurycea bislineata</i> )	X	X	X	
Eastern Newt (S5) ( <i>Notophthalmus viridescens</i> )		X	X	
Eastern Red-backed Salamander (S5) ( <i>Plethodon cinereus</i> )	X	X	X	
Common Gartersnake (S5) ( <i>Thamnophis sirtalis</i> )				
<b>Turtles</b>				
Snapping Turtle (S5) ( <i>Chelydra serpentina</i> )		X		
Painted Turtle (S5) ( <i>Chrysemys picta</i> )		X		

## Appendix K: Fort Dummer and Sweet Pond Breeding Bird Summary

### Fort Dummer State Park Breeding Bird Survey

List of All Birds Observed or Heard on June 25-26, 2008.

<u>Common Name</u>	<u>Code</u>	<u>Common Name</u>	<u>Code</u>
American Goldfinch	AMGO	Ruby-crowned Kinglet	RCKI
American Robin	AMRO	Ruby-throated Hummingbird	RTHU
Baltimore Oriole	BAOR	Scarlet Tanager	SCTA
Belted Kingfisher	BEKI	Song Sparrow	SOSP
Black-and-white Warbler	BAWW	Veery	VEER
Black-capped Chickadee	BCCH	White-breasted Nuthatch	WBNU
Black-throated Green Warbler	BTGW	Winter Wren	WIWR
Blue-headed Vireo	BHVI	Wood Thrush	WOTH
Blue Jay	BLJA	Yellow-bellied Sapsucker	YBSA
Brown Creeper	BRCR	Yellow-rumped Warbler	YRWA
Canada Goose	CAGO	Yellow-shafted Flicker	YSFL
Cedar Waxwing	CEWA		
Chestnut-sided Warbler	CSWA		
Chipping Sparrow	CHSP		
Common Grackle	COGR		
Common Snipe	COSN		
Common Yellowthroat	COYE		
Eastern Phoebe	EAPH		
Eastern Tufted Titmouse	ETTI		
Eastern Wood Peewee	EAWP		
European Starling	EUST		
Great-crested Flycatcher	GCFL		
Hairy Woodpecker	HAWO		
Hermit Thrush	HETH		
Mourning Dove	MODO		
Ovenbird	OVEN		
Pileated Woodpecker	PIWO		
Purple Finch	PUFI		
Red-breasted Nuthatch	RBNU		
Red-eyed Vireo	REVI		
Red-shouldered Hawk	RSHA		
Red-winged Blackbird	RWBL		
Rose-breasted Grosbeak	RBGR		

## Fort Dummer State Park Breeding Bird Survey

Birds Detected at Listening Points on June 25-26, 2008.

<i>Listening Point Number</i>	<i>Bird Code</i>			
	<b>June 25, 2008</b>		<b>June 26, 2008</b>	
<u>Point 1</u> (Trail junction)	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	EAWP	EAWP	WOTH	SCTA
	AMRO	AMRO	EAWP	EAWP
	REVI	REVI	REVI	REVI
	RBGR	RBGR	CEDW	
			AMRO	
			SCTA	
<u>Point 2</u> (where trail turns)	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	BHVI	BHVI	WOTH	SCTA
	BCCH	BCCH	BHVI	BHVI
		BTBW	BLWA	BLWA
			REVI	REVI
			BTGW	WOTH
			EAWP	OVEN
				WBNU
<u>Point 3</u> (Overlook)	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	REVI	REVI	REVI	REVI
			EAWP	EAWP
			BTGW	WBNU
				BLJA
<u>Point 4</u> (Trail junction)	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	ETTI	ETTI	WOTH	ETTI
	BCCH	BCCH	BTGW	REVI
	REVI		REVI	EAWP
			EAWP	BLJA
			BLJA	BLWA
			BLWA	OVEN
			OVEN	
<u>Point 5</u> (Overlook of Sunset Trail)	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	OVEN	OVEN	OVEN	OVEN
			BLJA	BTGW
			YRWA	REVI
			AMGO	AMCR
				BLJA

<i><u>Listening Point Number</u></i>	<i><u>Bird Code</u></i>			
	<b>June 25, 2008</b>		<b>June 26, 2008</b>	
	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
<u>Point 6</u> (Rest Area Overlook)			SOSP	SOSP
			AMRO	AMRO
			CHSP	CHSP
			CHSW	CHSW
			NOMO	NOMO
				EUST
				CEDW
				TRES
				BLJA
				BARS



## Sweet Pond State Park Breeding Bird Survey

List of All Birds Observed or Heard on June 25-26, 2008.

<u>Common Name</u>	<u>Code</u>	<u>Common Name</u>	<u>Code</u>
American Goldfinch	AMGO	Veery	VEER
American Robin	AMRO	White-breasted Nuthatch	WBNU
Baltimore Oriole	BAOR	Winter Wren	WIWR
Belted Kingfisher	BEKI	Wood Thrush	WOTH
Black-and-white Warbler	BAWW	Yellow-bellied Sapsucker	YBSA
Black-capped Chickadee	BCCH	Yellow-rumped Warbler	YRWA
Black-throated Green Warbler	BTGW	Yellow-shafted Flicker	YSFL
Blue-headed Vireo	BHVI		
Blue Jay	BLJA		
Brown Creeper	BRCR		
Canada Goose	CAGO		
Cedar Waxwing	CEWA		
Chestnut-sided Warbler	CSWA		
Chipping Sparrow	CHSP		
Common Grackle	COGR		
Common Snipe	COSN		
Common Yellowthroat	COYE		
Eastern Phoebe	EAPH		
Eastern Tufted Titmouse	ETTI		
Eastern Wood Peewee	EAWP		
European Starling	EUST		
Great-crested Flycatcher	GCFL		
Hairy Woodpecker	HAWO		
Hermit Thrush	HETH		
Mourning Dove	MODO		
Ovenbird	OVEN		
Pileated Woodpecker	PIWO		
Purple Finch	PUFI		
Red-breasted Nuthatch	RBNU		
Red-eyed Vireo	REVI		
Red-shouldered Hawk	RSAH		
Red-winged Blackbird	RWBL		
Rose-breasted Grosbeak	RBGR		
Ruby-crowned Kinglet	RCKI		
Ruby-throated Hummingbird	RTHU		
Scarlet Tanager	SCTA		
Song Sparrow	SOSP		

## Sweet Pond State Park Breeding Bird Survey

Birds Detected at Listening Points on June 25-26, 2008.

<i><u>Listening Point Number</u></i>	<i><u>Bird Code</u></i>			
	<u>June 25, 2008</u>		<u>June 26, 2008</u>	
<u>Point 1</u>	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	REVI	REVI	REVI	REVI
	OVEN	OVEN	OVEN	OVEN
	BWWA	BLJA	RBGR	SCTA
	RBGR	BCCH	YBSA	YBSA
	MODO		MODO	HETH
			BCCH	BCCH
<u>Point 2</u>	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	BCCH	AMGO	BEKI	BRCR
	YSFL	YSFL	REVI	REVI
	REVI	RCKI	AMRO	AMRO
	BEKI	MODO	OVEN	OVEN
	VEER	VEER	RBNU	YBSA
	OVEN	OVEN	MODO	MODO
	RBGR	BLJA	WBNU	BTGW
			WOTH	WOTH
			CEDW	WIWR
				AMGO
				BCCH
<u>Point 3</u>	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	REVI	REVI	REVI	REVI
	HETH	HETH	OVEN	OVEN
	BLJA	BLJA	WOTH	WOTH
		EWPE	BHVI	COYE
		YBSA	WIWR	WIWR
		RCKI	YBSA	YBSA
			BEKI	BLJA
				AMRO
<u>Point 4</u>	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	HETH	HETH	BLJA	WIWR
	SOSP	SOSP	REVI	VEER
	WBNU	WOTH	VEER	WOTH
	OVEN	OVEN	WOTH	YBSA
	COYE	BCCH	YBSA	AMGO

<i><u>Listening Point Number</u></i>	<i><u>Bird Code</u></i>			
	<b>June 25, 2008</b>		<b>June 26, 2008</b>	
<u>Point 4 (Cont.)</u>	<u>0-5 min.</u>	<u>6-10 min.</u>	<u>0-5 min.</u>	<u>6-10 min.</u>
	GCFL		OVEN	MODO
			SOSP	CEDW
			WIWR	REVI
			BAOR	OVEN
			CEDW	SOSP
			RWBL	
			COYE	
			BCCH	
			BTBW	
 <u>Point 5</u>	 <u>0-5 min.</u>	 <u>6-10 min.</u>	 <u>0-5 min.</u>	 <u>6-10 min.</u>
	WOTH	WOTH	WOTH	WOTH
	OVEN	SOSP	SOSP	BCCH
	REVI	REVI	REVI	REVI
		WBNU	YRWA	BEKI
		GCFL	OVEN	OVEN
		YBSA	BTGW	BTGW
		BEKI	BEKI	AMGO
			YBSA	CSWA
			WIWR	WIWR
				YRWA
				VEER
 <u>Point 6</u>	 <u>0-5 min.</u>	 <u>6-10 min.</u>	 <u>0-5 min.</u>	 <u>6-10 min.</u>
	SOSP	SOSP	EAPH	COGR
	AMRO	AMRO	BEK1	AMRO
	RWBL	RWBL	SOSP	PUFI
	OVEN	BLJA	AMRO	BAOR
	BLJA	COGR	RSFL	BEKI
		BAOR	RWBL	RTHU
			BAOR	SOSP
			OVEN	BLJA
			BLJA	
			COGR	
			RBGR	

**Appendix L:**  
**Sweet Pond Dam Assessment, Facilities Engineering 2007-2011**  
**Annual Dam Safety Inspections**

The Sweet Pond Dam is believed to be approximately 80 years old though original construction records do not exist. It was constructed long before State ownership of the parcel. Extensive repairs were done to the dam from 1987 to 1988. These were projected at the time to maintain the dam in good condition for 20 years. In 2009, the dam's rating by the Vermont Department of Environmental Conservation's Dam Inspection Program was lowered from fair to poor.

In the Spring of 2011, the dam was downgraded to a high hazard dam and the pond was drawn down at the request of the Dam Safety Division of the Vermont Department of Environmental Conservation.

Dubois & King were contracted to evaluate feasibility and costs of different options for the pond and dam in the Spring of 2011.





**Vermont Department of Environmental Conservation**

*Agency of Natural Resources*

Facilities Engineering Division

103 South Main Street, Laundry Bldg.

[phone] 802-241-4240

Waterbury, VT 05671-0511

[fax] 802-244-4516

**MEMORANDUM**

TO: **Jonathan Wood, Commissioner, Department of Forests, Parks and Recreation**  
FROM: **Brian A. Terhune, P.E., Dam Safety Engineer**  
DATE: **August 8, 2007**  
SUBJECT: **Inspection of Sweet Pond, Guilford**

---

Attached is a memorandum reporting on an inspection made by this Department under provisions of Title 10 of the Vermont Statutes Annotated, Section 1105 of the Sweet Pond Dam, Guilford, Vermont. The dam is owned by the Department of Forests, Parks and Recreation.

The dam was inspected on July 31, 2007 and is characterized as being in fair condition. Recommendations for maintenance and surveillance of the dams are included in the report. The dams are found to be large enough to be subject to the permit requirements of Title 10 of the Vermont Statutes Annotated, Chapter 43.

Please don't hesitate to call me at 241-4240 if I can be of further assistance.

CC: Larry Fitch, DEC  
John Guilmette, Agency Facilities



**Vermont Department of Environmental Conservation**

Facilities Engineering Division

103 South Main Street, Laundry Bldg.

Waterbury, VT 05671-0511

[phone] 802-241-4240

[fax] 802-244-4516

*Agency of Natural Resources*

**MEMORANDUM**

TO: **For the Record**  
FROM: **Brian A. Terhune, P.E., Dam Safety Engineer**  
DATE: **August 8, 2007**  
SUBJECT: **Inspection of Sweet Pond Dam, Guilford, VT**

On July 31, 2007, Brian Terhune, P.E., Chris Pollock, and Henry Nyenbrink made a routine periodic inspection of the Sweet Pond Dam in Guilford. A number of photographs were taken. The dam is owned by the Department of Forests, Parks, and Recreation. The inspection was carried out under the provisions of 10 VSA 1105.

**OVERALL CONDITION**

The overall condition of the dam is fair.

**DOWNSTREAM HAZARD CLASSIFICATION**

The dam is a Class 2, "significant hazard".

**RECOMMENDATIONS FOR OWNER**

1. Brushing should be done ten feet beyond the toe of the dam and ten feet beyond the abutments of the dam, to prevent the roots of the woody vegetation from encroaching on the dam.
2. The large cracks on the upstream face of the dam should be repaired to help prevent uncontrolled leakage through the dam.
3. The valve should be exercised at least annually to ensure operability and the lock on it should be replaced.
4. The large amounts of seepage in the discharge channel that is coming from the dam should be monitored for any changes in turbidity or changes in clarity.

**BACKGROUND AND DESCRIPTION OF DAM**

No dam at this site is shown on the USGS topographic map edition of 1934 (based on 1889 and 1932 surveys). However, the dam does appear on the 1954 edition (based on a 1951 air photograph). A date of November 6, 1928 was previously reported as having been written in the concrete cap existing before renovations constructed in 1986-88 to control leakage and stabilize stonework in the dam.

*To preserve, enhance, restore, and conserve Vermont's natural resources, and protect human health, for the benefit of this and future generations.*

The dam is a stone masonry structure located on Keets Brook with an upstream concrete facing and a concrete cap about 77 feet long including an overflow spillway section 18 feet long. A sluice gate structure is located at the approximate centerline of the dam. The sluice pipe is an 18-inch ductile iron pipe with an aluminum vertical lift gate at the upstream end. The dam has a maximum height of about 20 feet.

The dam had been previously inspected in 1974, 1980, 1982, 1986, 1988, 1989, and 1996 and was last inspected in 2002.

### INSPECTION

The inspection of this dam was conducted on July 31, 2007. The weather was sunny and the temperature was in the 90's. The following was observed:

1. Dam:

- a. Upstream Face: The upstream face was mostly underwater, which made it difficult to inspect thoroughly. There were many cracks along the entire face of the dam. These cracks had sediment and vegetation starting to grow in them. The cracks appeared to be cutting into the face of the dam. There were some areas that were beginning to spall.
- b. Downstream Face: The downstream rock face of the dam had mosses growing on the rocks. There was some vegetation starting to grow in the rocks of the dam. There was some beaver debris that has collected at the toe of the dam. There were two large seeps in the spillway channel. One to the right of the spillway pipe and one to the left of the spillway pipe. Water could be heard flowing through the dam. The sluiceway had some rocks in it that had fallen down.
- c. Crest: The crest of the dam had many large cracks spanning the width of the dam. There were some minor areas of spalling on the crest. At the right abutment there was some sediment that has collected on the dam and it was starting to grow vegetation.

2. Principal Spillway:

- a. Approach Channel: The approach channel was clear from any debris.
- b. Discharge Channel: The discharge channel had a large amount of beaver debris and other driftwood that has collected at downstream end of the spillway apron.
- c. Intake Structure: The grate on the top of the intake structure was bent and the lock on the valve was bent and twisted. The concrete appeared to be in fair condition with some minor weathering.
- d. Outlet Structure: The outlet structure appeared to be in good condition. There was some minor debris in the pipe.

3. Emergency Spillway:

- a. Approach Channel: The approach channel was clear from any debris.
- b. Control Section: The control section had some minor brush and debris. The concrete spillway and apron appeared to be in fair condition with some minor weathering, cracking and spalling.

### **HYDROLOGY AND HYDRAULICS**

The drainage area at this site is about 1.1 square miles. The pond area at the normal pool is 18 acres with storage of 137 acre-feet. At the dam crest, the pool stores 155 acre-feet. The maximum discharge from an unobstructed spillway would be about 545 cfs.

### **JURISDICTION**

Since the dam impounds more than 500,000 cubic feet, any alteration, reconstruction or breaching would require prior approval from the Department under provisions of 10 VSA Chapter 43.



RECEIVED

JUL 21 2008

**Vermont Department of Environmental Conservation**

*Agency of Natural Resources*

Facilities Engineering Division


103 South Main Street, Laundry Bldg.

[phone] 802-241-4240

Waterbury, VT 05671-0511

[fax] 802-244-4516

**MEMORANDUM**

TO: **Jonathan Wood, Commissioner, Department of Forests, Parks and Recreation**  
FROM: **Stephen Bushman, P.E., Dam Safety Engineer**   
DATE: **July 15, 2008**  
SUBJECT: **Inspection of Sweet Pond, Guilford**

Attached is a memorandum reporting on an inspection made by this Department under provisions of Title 10 of the Vermont Statutes Annotated, Section 1105 of the Sweet Pond Dam, Guilford, Vermont. The dam is owned by the Department of Forests, Parks and Recreation.

The dam was inspected on June 18, 2008 and is characterized as being in fair condition. Recommendations for maintenance and surveillance of the dams are included in the report. The dams are found to be large enough to be subject to the permit requirements of Title 10 of the Vermont Statutes Annotated, Chapter 43.

Please don't hesitate to call me at 241-3450 if I can be of further assistance.

*To preserve, enhance, restore, and conserve Vermont's natural resources, and protect human health, for the benefit of this and future generations.*





**Vermont Department of Environmental Conservation**

Facilities Engineering Division

103 South Main Street, Laundry Bldg.

Waterbury, VT 05671-0511

[phone] 802-241-3450

[fax] 802-244-4516

*Agency of Natural Resources*

**MEMORANDUM**

TO: **For the Record**  
FROM: **Stephen Bushman, P.E., Dam Safety Engineer**  
DATE: **July 15, 2008**  
SUBJECT: **Inspection of Sweet Pond Dam, Guilford, VT**

On June 18, 2008, Stephen Bushman, P.E., and Jonathan Grace made a routine periodic inspection of the Sweet Pond Dam in Guilford. A number of photographs were taken. The dam is owned by the Department of Forests, Parks, and Recreation. The dam was last inspected on July 31, 2007. The inspection was carried out under the provisions of 10 VSA 1105.

**OVERALL CONDITION**

The overall condition of the dam is fair.

**DOWNSTREAM HAZARD CLASSIFICATION**

The dam is a Class 2, "significant hazard".

**RECOMMENDATIONS FOR OWNER**

1. Develop, implement and keep current an Emergency Action Plan (EAP) to be used in the event of an impending failure or other emergency at the dam. The EAP should be reviewed and tested at least annually. A copy of the EAP should be submitted to the Dam Safety Section.
2. Aggressive clearing and brushing should be done ten feet beyond the toe of the dam and ten feet beyond the abutments of the dam, to prevent the roots of the woody vegetation from encroaching on the dam.
3. The large cracks on the upstream face of the dam should be repaired to help prevent uncontrolled leakage through the dam.
4. Remove all vegetation from the concrete and stone portions of the dam to prevent damage from root encroachment.
5. The valve should be maintained and exercised at least annually to ensure operability. The lock should be replaced.
6. The large amounts of seepage in the discharge channel that is coming from the dam should be monitored for any changes in turbidity or changes in clarity.

*To preserve, enhance, restore, and conserve Vermont's natural resources, and protect human health, for the benefit of this and future generations.*

## **BACKGROUND AND DESCRIPTION OF DAM**

No dam at this site is shown on the USGS topographic map edition of 1934 (based on 1889 and 1932 surveys). However, the dam does appear on the 1954 edition (based on a 1951 air photograph). A date of November 6, 1928 was previously reported as having been written in the concrete cap existing before renovations constructed in 1986-88 to control leakage and stabilize stonework in the dam.

The dam is a stone masonry structure located on Keets Brook with an upstream concrete facing and a concrete cap about 77 feet long including an overflow spillway section 18 feet long. A sluice gate structure is located at the approximate centerline of the dam. The sluice pipe is an 18-inch ductile iron pipe with an aluminum vertical lift gate at the upstream end. The dam has a maximum height of about 20 feet.

The dam had been previously inspected in 1974, 1980, 1982, 1986, 1988, 1989, 1996, and 2002 and was last inspected in 2007.

## **INSPECTION**

The inspection of this dam was conducted on June 18, 2008. The weather was overcast and the temperature was in the 60's. The following was observed:

1. Dam:
  - a. Upstream Face: The upstream face was mostly underwater, which made it difficult to inspect thoroughly. There were many cracks along the entire face of the dam. These cracks had sediment and vegetation starting to grow in them. The cracks appeared to be cutting into the face of the dam. There were some areas that were beginning to spall.
  - b. Downstream Face: The downstream rock face of the dam had mosses growing on the rocks. There was some vegetation starting to grow between the stones of the dam. There was one small tree near the crest of the dam that was growing on top of a rock that had jugged out. There were multiple seeps on the downstream side of the dam. One large seep on the right side of the dam was leaking at about 20-25 gpm. The old sluice gate was leaking at about 1 gpm. There were three leaks near the outlet pipe. The leak on the left of the outlet pipe was leaking at about 5 gpm. The two leaks on the right were leaking at about 1 gpm and 5 gpm. There was also water seeping from under the outlet pipe. Water could be heard flowing through the dam.
  - c. Crest: The crest of the dam had many large cracks spanning the width of the dam. There were some minor areas of spalling on the crest. The left abutment was covered with debris and the right abutment was covered with gravels.
2. Spillway:
  - a. Approach Channel: The approach channel was clear from any debris.
  - b. Control Section: The control section had some minor brush and debris. The left and right end of the spillway should be cleared.
3. Emergency Spillway: There is no defined emergency spillway. In a flood event the crest would act as the emergency spillway.

4. Low Level Outlet:

- a. Valve: Not operated, but appeared to be in fair condition. The lock had been damaged.
- b. Discharge Channel: The discharge channel had some logs and debris.
- c. Housing Structure: The grate on the top of the housing structure was bent. The concrete appeared to be in fair condition with some minor weathering.
- d. Conduit: The conduit appeared to be in good condition.

**HYDROLOGY AND HYDRAULICS**

The drainage area at this site is about 1.1 square miles. The pond area at the normal pool is 18 acres with storage of 137 acre-feet. At the dam crest, the pool stores 155 acre-feet. The maximum discharge from an unobstructed spillway would be about 545 cfs.

**JURISDICTION**

Since the dam impounds more than 500,000 cubic feet, any alteration, reconstruction or breaching would require prior approval from the Department under provisions of 10 VSA Chapter 43.



Vermont Department of Environmental Conservation

*Agency of Natural Resources*

Facilities Engineering Division

103 South Main Street, Laundry Bldg.

[phone] 802-241-3450

Waterbury, VT 05671-0511

[fax] 802-244-4516

MEMORANDUM

TO: Ed O'Leary, Director of Operations, Department of Forests, Parks and Recreation  
FROM: Stephen Bushman, P.E., Dam Safety Engineer *SLB*  
DATE: August 25, 2009  
SUBJECT: Inspection of Sweet Pond Dam, Guilford

Attached is a memorandum reporting on an inspection made by this Department under provisions of Title 10 of the Vermont Statutes Annotated, Section 1105. The dam is owned by the Department of Forests, Parks and Recreation.

Recommendations for maintenance and surveillance of the dam are included in the report. The dam is found to be large enough to be subject to the permit requirements of Title 10 of the Vermont Statutes Annotated, Chapter 43.

Please don't hesitate to call me if you have any questions.

---

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Facilities Engineering Division  
103 South Main Street, Laundry Bldg.  
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[phone] 802-241-3450  
[fax] 802-244-4516

Agency of Natural Resources

#### MEMORANDUM

TO: For the Record  
FROM: Stephen Bushman, P.E., Dam Safety Engineer *SB*  
DATE: August 28, 2009  
SUBJECT: Inspection of Sweet Pond Dam, Guilford, VT

On August 19, 2009, Stephen Bushman, P.E., and Shawn Thompson made a routine periodic inspection of the Sweet Pond Dam in Guilford. Keith Albee, Park Maintenance Technician, was present during the inspection. A number of photographs were taken. The dam is owned by the Department of Forests, Parks, and Recreation. The dam was last inspected on June 18, 2008. The inspection was carried out under the provisions of 10 VSA 1105.

#### OVERALL CONDITION

The overall condition of the dam is poor. This is down graded from previous inspections due the continued deterioration of the dam, documented excessive seepage, and stability concerns.

#### DOWNSTREAM HAZARD CLASSIFICATION

The dam is a Class 2, "significant hazard".

#### JURISDICTION

Since the dam impounds more than 500,000 cubic feet, any alteration, reconstruction or breaching would require prior approval from the Department under provisions of 10 VSA Chapter 43.

#### RECOMMENDATIONS FOR OWNER

1. The dam should be included in the Department of Forests, Parks, and Recreation's capital plan for major infrastructure repairs, or consideration should be given for removal of the dam. This recommendation is based on the following observations and information contained on file in the dam safety office:
  - Stability analysis completed in 2002 determined the dam does not meet stability criteria for ice and design flood loading conditions. Structural integrity, weathered bedrock foundation, and excessive leakage are key factors.
  - Excessive leakage through the upstream concrete wall has caused some internal erosion of the dam. The seepage through the concrete and weathered bedrock foundation has caused the pond level to drop several feet during dry summers. Continued leakage combined with vegetation growing in cracks in the upstream concrete and voids in the downstream stone continues to have a destabilizing effect on the dam, as illustrated by the observations noted in

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1997 compared to 2002: The 1997 inspection characterized the downstream stone wall of the dam as "The downstream face of the dam was generally plumb and good for alignment", while the 2002 inspection characterized the downstream stone wall as "Conditions in the stone wall portions of the dam continue to be unstable as previously reported with bulging and loss of stones not yet to point of creating instability." Recent inspections confirm the 2002 observations.

- Inadequate spillway capacity for a significant hazard dam. A significant hazard dam should be able to pass the flood flow from between a 100-year storm and the 1/2 probable maximum precipitation storm. An early evaluation by the dam safety program calculated the dam would be overtopped by at least one foot during a 100 year storm, leading to destabilization and possible failure of the dam.

Until the dam is repaired or replaced, the following should be implemented:

1. Develop, implement and keep current an Emergency Action Plan (EAP) to be used in the event of an impending failure or other emergency at the dam. The EAP should be reviewed and tested at least annually. A copy of the EAP should be submitted to the Dam Safety Section.
2. The low-level sluice gate operator should be repaired, tested, and exercised at least annually to insure operability. This is important to insure the pond could be lowered in an emergency. The lock should be replaced, and steps to vandal proof the gate should be taken.
3. The large cracks on the upstream face of the dam and crest should be repaired to help prevent uncontrolled leakage through the dam.
4. Remove all vegetation from the concrete and stone portions of the dam to prevent damage from root encroachment. Any brush within 10 feet of the dam should be cut and trees growing on the rock should be removed.
5. The large amounts of seepage in the discharge channel that is coming from the dam should be monitored for any changes in turbidity or changes in clarity.
6. The debris built up at the end of the concrete discharge channel should be removed.

### INSPECTION

The inspection of this dam was conducted on August 19, 2009 at 1100 hours. The weather was partly cloudy and the temperature was in the 70's. The following was observed:

1. Dam:
  - a. Upstream Face: The upstream face was mostly underwater, which made it difficult to inspect thoroughly. It was clear that there was major cracking and deterioration along the face of the concrete. These cracks had sediment, and vegetation was established in some of them. There were some areas of spalling as well.
  - b. Downstream Face: The downstream rock face of the dam had mosses growing on the rocks. There was some vegetation starting to grow between the stones of the dam. There was one small tree near the crest of the dam that was growing on top of a rock that had jugged out. There were multiple seeps on the downstream side of the dam. One large seep on the right side of the dam was leaking at about

20-25 gpm. The old sluice gate was leaking at about 1 gpm. There were three leaks near the outlet pipe and water was seeping from under the outlet pipe. Water could be heard flowing through the dam. The toe was kept clear and there were only a few small trees close to the stone. There was some minor brush on the right abutment.

- c. Crest: The crest of the dam had many large cracks spanning the width of the dam. There were some minor areas of spalling on the crest. The left abutment was covered with soil, vegetation, and debris and the right abutment was covered with gravels.

2. Spillway:

- a. Approach Channel: The approach channel was clear from any debris.
- b. Control Section: The control section had some minor spalling in the concrete.
- c. Discharge Channel: The concrete was in fair condition but there was a lot of debris built up at the end of the concrete. There were a few trees growing on the rock training walls.
- d. Conduit: The conduit appeared to be in good condition.

- 3. Emergency Spillway: There is no defined emergency spillway. In a flood event the crest would act as the emergency spillway.

4. Low Level Outlet:

- a. Valve: Not operated, but appeared to be in poor condition. The lock had been damaged and the cover was broken off.
- b. Housing Structure: The grate on the top of the housing structure was bent. The concrete appeared to be in fair condition with some minor weathering.

### HYDROLOGY AND HYDRAULICS

The drainage area at this site is about 1.1 square miles. The pond area at the normal pool is 18 acres with storage of 137 acre-feet. At the dam crest, the pool stores 155 acre-feet. The maximum discharge from an unobstructed spillway would be about 545 cfs.

## **Appendix M: Dutton Pines State Park Well Easement**

### QUIT CLAIM DEED

KNOW ALL MEN BY THESE PRESENTS that the **State of Vermont**, a sovereign state with its capital in the City of Montpelier and County of Washington, Grantor, by and through its Commissioner of the Department of Forests, Parks and Recreation, in the consideration of One Dollar and other good and valuable considerations paid to its full satisfaction by **The Housing Foundation, Inc.**, a Vermont not for profit corporation of Montpelier in the County of Washington and State of Vermont, Grantee, have REMISED, RELEASED, AND FOREVER QUITCLAIMED unto the said Grantee, **The Housing Foundation, Inc.**, and its successors or assigns, a certain easement located in the Town of Dummerston in the County of Windham and State of Vermont, described as follows, viz:

Being three easement areas for the purpose of developing a water source and maintaining wellheads and underground water lines on lands of the State of Vermont known as Dutton Pines State Park. Said wells, wellheads and water lines include a circular area with a 125' radius around each well (the "isolation zone"). The location of each respective well and connecting lines being depicted on plans on file with the Department of Forests, Parks and Recreation, State Lands Administration, and The Housing Foundation, Inc., which plans are to be recorded in the Dummerston Land Records.

By acceptance and recording of this quitclaim easement deed the Grantee, for itself and its successors and assigns, agrees that the rights exercised under this easement shall be subject to the following terms and conditions:

1. Grantee's activities associated with this easement shall not prevent the public's access to Dutton Pines State Park.
2. Grantee shall restore any area disturbed by its activities to the condition to which it existed prior to the Grantee's activities. These areas include, but not limited to the following: roadways, walkways, turf, fences and strikers.
3. During any activity being exercised under the right of this easement the area being used shall be maintained in a condition satisfactory to the said Commissioner or his designee. This shall include, but is not limited to, the removal of any trash or rubbish that shall appear within the easement area.
4. Upon completion any activity being exercised under any rights of this easement the Grantee shall be responsible for the removal of any and all equipment or personal property which may have been placed or used upon the easement area or upon any part of the premises comprising Dutton Pines State Park.

5. The rights granted herein shall not be exclusive. The State of Vermont reserves the right to use, or allow others to use, any part of the easement areas herein described provided such use does not unreasonably interfere with the rights granted herein.
6. The Grantee shall indemnify, defend and hold harmless the State of Vermont from all claims, suits or demands for payment by any person arising from the Grantee's activities exercised under the rights of this easement.
7. Any rights granted herein shall not exempt the Grantee from the obligation to obtain and maintain, at its own expense, any and all permits or licenses required by law or by regulation promulgated under rule of law. The Grantee shall be responsible for any penalties arising from the violation of any terms or conditions of any of those permits or licenses.
8. No buildings or structures shall be erected on the conveyed easement premises.
9. The Grantee shall not use herbicides, pesticides, growth inhibitors, or other toxic chemicals.
10. In the event any State-owned water and sewer systems located on the premises and owned by the State of Vermont, or the water and sewer systems of any private property owners adjacent to Dutton Pines State Park are negatively impacted as a result of, Grantee's pump testing and water supply construction and use, Grantee agrees to cease and desist its adverse activity immediately upon notice by The State of Vermont.
11. No trees, shrubs, or other vegetation may be cut or removed without prior consent of the Commissioner of the Department of Forests, Parks and Recreation, or his designee.
12. Any violation of the terms and conditions of this easement shall render this conveyance null and void.

By the granting and acceptance of this instrument, Grantee agrees to deposit with The State of Vermont the sum of \$2,500.00, which amount shall be refundable upon a finding that the construction of the proposed water supply has not unduly damaged the Dutton Pines State Park and that, to the extent possible, the park has been returned to its pre-construction condition. Grantee further agrees to pay an annual fee to The State of Vermont for this easement in the amount of \$250.00.

TO HAVE AND TO HOLD all right and title in and to said quit-claimed premises, with the appurtenances thereof, to the said Grantee, **The Housing Foundation, Inc.**, and its

successors and assigns, forever.

AND FURTHERMORE the said Grantor, **State of Vermont**, do for itself and its successors and assigns, covenant with the said Grantee, **The Housing Foundation, Inc.**, and its successors and assigns, that from and after the ensealing of these presents the said Grantor, **State of Vermont** will have and claim no right in, or to the said quit-claimed premises, **EXCEPT AS AFORESAID**.

IN WITNESS WHEREOF, Conrad M. Motyka, Commissioner of the Department of Forests, Parks and Recreation, as duly authorized agent for the State of Vermont, pursuant to Act 155, Section 32b, The "Fee Bill", does hereby subscribe this instrument this 17<sup>th</sup> day of December, 1999.

In the presence of:

STATE OF VERMONT

*[Signature]*  
Witness

BY: *[Signature]*  
Conrad M. Motyka, Commissioner

STATE OF VERMONT  
WASHINGTON COUNTY, SS.

At Waterbury, Vermont this 17<sup>th</sup> day of December, 1999, Conrad M. Motyka, Commissioner, personally appeared and acknowledged this instrument by him subscribed to be his free act and deed and the free act and deed of the State of Vermont.

Before me, *[Signature]*  
Notary Public

My commission expires: 2/10/2003

Vermont Property Transfer Tax  
32 V.S.A. Chap. 231  
- ACKNOWLEDGMENT -  
RETURN RECEIVED  
(Including certificates and, if required Act  
250 Disclosure Statement) and Tax Paid.  
Return No. 99-110  
Signed: *[Signature]*, Clerk  
Date: December 22, 1999

hfi.qcd



## Appendix N: Sweet Pond House Inspection



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October 19, 2009

Vermont State Parks  
Attn: Mr. Ethan Phelps  
Dept of Forest Parks & Rec  
100 Mineral St Ste 304  
Springfield VT 05156

Re: Your Property  
2763 Sweet Pond Road  
Guilford, Vermont  
Job #09-27191

Dear Mr. Phelps:

At your request, a structural and mechanical inspection of the above property was performed on October 15, 2009. This inspection was performed by and report written by Michael J. Foster, Jr. For your interest, a copy of Mr. Foster's resume is attached.

The report that follows has been prepared from the perspective of what an owner of this property would benefit from knowing. Thus, it discusses many things beyond those which are of immediate concern. Therefore, the report needs to be read in its entirety to understand fully all the information that has been obtained.

For your convenience, we have prepared the following summary to highlight the condition of the major systems of the property. Please refer to the appropriate section of this report for a more detailed discussion of these systems.

### Summary

The structural system is in need of repair.  
(See Structure, page 4.)

The heating system needs to be returned to service and performance tested.  
(See Heating, page 9.)

The plumbing system is operational.  
(See Plumbing, page 11.)

The electrical system is in need of upgrading.  
(See Electrical, page 12.)

The exterior is in need of regular maintenance and repair.  
(See Exterior, page 16.)

The roof is in need of repair.  
(See Roofing, page 17.)

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In summary, we consider this home to be in below average condition when compared to others of similar age and construction type. This is primarily because of the amount of deferred maintenance and condition of the basic systems. As a result, this home needs considerably more renovation, rehabilitation, and maintenance than most we examine. You may expect to invest a considerable amount of time and money in this home.

In addition to these general condition statements, this report covers repairs and maintenance. (See attached **Maintenance Plan**.)

### **Introduction**

The conditions, recommendations, and suggestions contained herein are the result of a visual inspection as of this date and are presented to make this property a better and more comfortable place to live. We do, of course, look for problems, particularly those we would consider major deficiencies in the property. We generally define a significant deficiency as one that would cost approximately \$500.00 or more to correct. Any property will have minor items deserving attention. Often these are matters of personal preference that are mostly noticed by the property owner. Therefore, it is not our intent to detail every minor defect we might find.

This inspection report is limited to observations made from visual evidence. No destructive or invasive testing was performed. The report is not to be considered a guarantee of condition and no warranty is implied.

For your reference while reading the report that follows, the following definitions may be helpful:

- Good - Component or system is sound and performing its function. Although it may show signs of normal wear and tear, some minor rehabilitation work may be required.
- Fair - Component or system falls into one or more of the following categories: a) Evidence of previous repairs not in compliance with commonly accepted practice, b) Workmanship not in compliance with commonly accepted standards, c) Component or system is obsolete, d) Component or system approaching end of expected performance. Repair or replacement is required to prevent further deterioration or to prolong expected life.
- Poor - Component or system has either failed or cannot be relied upon to continue performing its original function as a result of having exceeded its expected performance, excessive deferred maintenance, or state of disrepair. Present



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conditions could contribute or cause the deterioration of other adjoining elements or systems. Repair or replacement is required.

All ratings are determined by comparison to other buildings of similar age and construction type. Further, some details of workmanship and materials will be examined more closely in higher quality homes where such details of workmanship and materials typically become more relevant.

Attached are the actual inspection check lists which contain additional information. These should be considered part of the overall evaluation and report.

This report is based on an examination of the major systems in this property; specifically, the heating, plumbing, electrical, and structural systems. This report is an opinion about the condition of this portion of the building. It is based on visual evidence available during a diligent inspection of all reasonably accessible areas. No surface materials were removed, no destructive testing undertaken, nor furnishings moved. This report is not an exhaustive technical evaluation. Such an evaluation would cost many times more.

Our inspection and report do not include code compliance, mold investigations, environmental investigations, indoor air quality analysis, municipal regulatory compliance, subsurface investigation, verification of prior uses, or records research related to the property.

Owning any property involves some risk. Even the most comprehensive inspection cannot be expected to reveal every condition you may consider relevant to your ownership. Further, without disassembling the building, not everything can be known.

Our report is not intended to determine the insurability of your home or any of its components, materials or systems. Insurance companies use many different standards and criteria to determine what is or is not covered under a homeowner's policy. For example, some do not cover certain types of roofing while others avoid certain types of siding.

Our inspection does not make any attempt to know or verify the prior uses of this property and cannot determine whether or not illegal activities have been engaged in on or near the property, including but not limited to, the use or manufacture of illegal substances, criminal events or the presence of substances banned or controlled by federal, state or local law. If this is of concern to you, we recommend that you make appropriate inquiries into past uses to resolve your concerns.

We performed a standard inspection per our agreement for services. A copy of this agreement is attached for your reference.



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We will be discussing many different subjects in this report as well as offering recommendations for changes and improvements to this property. As you read the report, pay particular attention to our notes regarding the fact that many of our observations and recommendations are typical of many properties we look at. Thus, while it may seem that there is some work to do during the next five to ten years, keep in mind that no property is perfect and all deserve some care, attention and upgrading.

For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer standing in front of the building and facing it.

### **Description**

This house is a one-story plus, average sized residence with wood clapboard siding on the exterior walls and a slate roof surfacing.

There is a basement under part of this building.

Also, there is a crawl space under part of this building which is not fully accessible for inspection.

In addition, there is a detached garage. This building is not included in this evaluation.

Overall, we consider this home to be in below average condition at this time. There is much work to do, both in the near and more distant future. It is important to understand that quite a bit of work will be required which will involve considerable amounts of time and money to complete the repairs and upgrading of this property.

### **Structure**

Our evaluation of this structure is based on many indirect observations. Because we cannot see a significant portion of the framing, we look for cracks, bulges, and other evidence of distress or deterioration to help us evaluate the structural condition. As with any limited inspection, it is possible that there are structural deficiencies that cannot be seen.

The following areas are inaccessible and limited the extent of our structural inspection:

- Upper attic area remote from the access opening.





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- Roof framing above sloped ceilings.
- Crawl area under the right end of the building.
- The lower portion of the building exterior covered by insulation and plastic.
- Portions of the basement, interior and attics blocked by possessions.

Access to the upper attic area is provided by an access hatch in the second floor hall. Conditions in this attic area were observed from the access opening.

Access to the lower right attic area is provided by an access hatch in the second floor right rear room. Conditions in this attic area were observed by entering the space.

Limited visual access to the right crawl area is provided by an access hatch at the right end of the building exterior. Conditions in the crawl area were observed from the access opening.

The basic construction of this building consists of stone and concrete foundation walls and a column-girder system for support of the first floor level joist members. This is a standard method of construction.

Where visible, the foundation walls are generally in good to fair condition. There are a few cracks and open mortar joints, which is typical for this type of foundation wall.

The cracks in the stone foundation wall at the right end of the building exterior appear to be the result of settlement. Repairs should be planned for.

The soft and open mortar joints in the foundation walls should be properly packed with cement mortar. This will cut down on moisture seepage/leakage and will help to prevent rodent entry.

Maintenance of this stone foundation wall includes packing any soft or open mortar joints with cement mortar. This is an ongoing process. Walls should be inspected periodically for signs of problems and the recommended maintenance undertaken.

Keep in mind when resealing these joints, to leave weep holes open along the bottom to relieve water pressure which could build up outside this wall and cause foundation movement.

Within the basement, there has been some cracking of the concrete slab. This is common and to be expected. There is no apparent structural deficiency related to this condition.





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The framing for this home can best be described as balloon.

Where visible, the basic structural members are in good to fair condition. However, with portions of the roof and floor framing inaccessible, all of these members could not be examined.

There is evidence of dry rot damage in the floor framing of this house. This is common in houses of this age and construction type and does not appear to represent a major structural problem at this time. However, repairs to those members affected should be anticipated within the next five years or so to avoid a more serious structural problem. Specifically, the older floor joists, beams and sills are most affected. These members should be inspected regularly.

Some reinforcement of the older floor framing has already been done.

Evidence of rot and deterioration was noted at the right rear entry door. The full extent of this condition could not be determined at the time of inspection. This area should be opened to allow for further investigation and the proper repairs made.

While there is no visible evidence of any significant dry rot present elsewhere in this structure, it should not be assumed that no dry rot exists in any of the inaccessible areas. Dry rot can result from moisture accumulating underneath the siding, behind trim, or within the wall cavities should the normal drying process be restricted by insulation or other obstacles. Therefore, it is possible that you will encounter some dry rot if you undertake any projects that involve disassembly of the portions of this structure normally inaccessible to visual inspection. This is typical for any home.

It has also been our experience that rot can often be found in those portions of the sill that are not commonly visible (i.e. behind the siding, the bottom surface adjacent to the foundation wall, etc.). Thus, you may discover some deterioration in the sill and related framing when any repair work is undertaken that exposes these normally inaccessible portions of the structure.

With a house of this age, there may be significant problems that are not visible during an inspection that can undertake no destructive or exploratory actions. While such problems are common, they can also be expensive in terms of money and time. Every effort is made to determine the condition of the structure of this house. However, if you undertake some work on this house that involves removal of interior or exterior finish, etc., you should anticipate discovering some structural problems that will require repair. This is part of the nature of an older home.

Evidence of what appeared to be previous destructive insect activity was noted in the basement area. While no evidence of active infestation was noted, we recommend that you keep these



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members under observation for evidence of further activity. Should further activity be noted, we recommend that an exterminator be consulted to investigate this condition and take any necessary action.

Conditions exist in this home that would encourage carpenter ant and other insect activity. Specifically, these insects prefer to nest in damp environments. Therefore, all areas where wood is close to the ground and likely to become moist at various times of the year should be kept under observation for possible insect activity. Also, it is possible that you will encounter some carpenter ant activity and/or damage if you undertake any projects that involve disassembly of the normally inaccessible portions of this structure.

We recommend that the wood posts in the basement area be replaced with steel columns on proper bases. Wood posts will rot, allowing structural sagging.

Some of the columns used to support the first floor girders are the adjustable type that are intended for temporary use. Although they appear to have functioned well so far, continued satisfactory performance cannot be guaranteed. Thus, we recommend that they be replaced with permanent steel columns on proper concrete footings.

In the crawl space, insufficient ventilation and insufficient separation between the ground and the framing will lead to deterioration. We recommend that a minimum of 12 inches between the ground and the bottom of any girder, and a minimum of 18 inches between the ground and the bottom of the floor joists be maintained.

It is typical for homes of this age to have floors that can be described as "springy" or "bouncy." This is a result of the type of framing used in its construction. This does not appear to represent a serious structural problem. Generally, the lower floor can be easily braced to provide more stiffness if desired, but it is more difficult to provide such bracing for upper floors.

There has been some normal settlement of these premises, which is to be expected. This is indicated by some sagging floors, separations between floor and base moldings, etc. However, there are no indications of structural instability.

Overall, we consider the structural condition of this building to be below average.



### **Basement Water**

While it did not appear major, evidence of moisture and seepage through the foundation walls was noted. This is the result of the type and condition of the foundation walls, ground sloping conditions, soil conditions, etc. Specifically, this evidence includes:

- Water stains on the walls.
- Water stains on wood in contact with the floor.

If significant amounts of water should enter the basement area, it would be important to establish some type of drainage system, either through drain pipes or a sump pump, to remove such water quickly.

Depressions in the ground adjacent to the house should be regraded so that water is not retained there.

In the basement and crawl area under the house, the following is recommended:

- Provide and maintain proper ventilation. Screened vents are best. However, a fan is also good if vents are not practical.
- Cover the dirt floor with a moisture barrier material (polyethylene is commonly used).

### **Ventilation**

Ventilation of insulated attics is important. The amount of ventilation should be one square foot of vent area for each 300 square feet of attic floor area.

There are no louvers in the attic area and these are needed for proper ventilation and prevention of moisture condensation.

Basement ventilation is extremely important to minimize condensation and the effects of any water that might seep into this area. We recommend keeping all basement windows open throughout the warmer months of the year. As appropriate, they should be equipped with screens to prevent rodent and insect entry.



If natural ventilation is inadequate, the installation of a dehumidifier unit in the basement is recommended for humidity control.

It is important to keep the crawl space under this house ventilated. The minimum amount of ventilation should be one square foot of vent area for each 150 square feet of floor area. We suggest installation of screened vents in the exterior walls of the crawl space to provide good air circulation.

Indoor air quality is a growing concern. Mold and mildew, fostered by moisture accumulation, can lead to respiratory discomfort and aggravate allergies and other respiratory conditions. While there was no visible evidence of any moisture-related problems in the home, such conditions are not always visible. We cannot be responsible for any such conditions that might be discovered later.

#### **Heating**

A coal stove is used to heat this home. Refer to the **Chimneys, Hazardous Materials, and Safety** section for discussion of the stove installation.

This home is equipped with an oil-fired, forced hot air heating unit. This unit consists of a burner (the small unit located at the front), a furnace (in which the air is heated); and a circulating fan (which distributes the air to the various rooms).

The heating unit was not in operation. It was, therefore, impossible to check the serviceability and operation of the heating unit.

The current tenant reported that the heating system had not been used in many years.

If use of this system is desired it should be returned to service by a qualified heating contractor and checked for proper operation.

We recommend that the heating unit such as this be cleaned and serviced at least once each year. This cleaning and servicing should include the motor, blower, filter, etc.

If this system is to be used, we recommend that a smoke test or similar test be conducted by a heating contractor to determine if there are cracks in the heat exchanger that would require a furnace replacement. A cracked heat exchanger can allow contamination of heated air, which can be a health hazard.



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Further, the proper cleaning of the chimney flue serving the heating unit is recommended every three to five years.

For maximum efficiency with this hot air furnace, it will be necessary to clean or replace the air filters regularly. These should be cleaned or replaced at least once a month, or more frequently if inspections indicate that they are becoming clogged with dust and dirt. Clogged filters can dramatically reduce the efficiency of your heating system.

A cleaning of all ductwork and heating grills is also suggested.

### **Energy Efficiency**

In any building, the two most important contributors to energy efficiency are the conduction and infiltration losses. Conduction (or direct loss through the walls and ceiling) is primarily controlled by insulation. Infiltration loss (drafts or air leakage) is controlled by caulking and weatherstripping.

In this property, there is an opportunity to improve both the conduction and infiltration losses.

There appears to be three to four inches of insulation in the attic of this building. Additional energy savings will be realized by installing additional unfaced insulation over the existing insulation. Six inch thick batts are probably the most convenient way to install additional insulation, although blown-in insulation is an alternative. Care should be taken to ensure that any additional insulation does not block the attic ventilation.

Because there is no opening to the area above the sloped ceilings, the structural members, insulation, and ventilation in this area could not be examined.

At this time, it is uncertain whether or not there is insulation in the walls of this building.

Not all of the windows are equipped with storm windows. Installation of these will cut down drafts and loss of heat, which will result in fuel savings, besides adding materially to the comfort of the house. These are recommended.

This property is equipped with aluminum-framed storm windows on a few of the windows. These were in fair to poor condition at the time of the inspection.





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All of the storm windows should be checked to be sure that the drainage holes toward the bottom are kept open to permit proper drainage of any moisture that accumulates between the two windows.

For maximum energy efficiency, the storm windows must work together with the primary windows. Both must be tight to assure a static air mass between the two. Therefore, a good quality weatherstripping should be applied to all of the older primary windows throughout the building.

Upgrading the exterior doors and installing storm doors is recommended to improve energy efficiency.

To be sure you are not wasting energy on the production of hot water, you should check the temperature of the hot water produced. If it is above 130 degrees, we recommend that you reduce it to that level to minimize your hot water energy requirements. To be most accurate, use a thermometer at the hot water faucet.

### **Plumbing**

This house is apparently served by its own well. We recommend obtaining a water quality test to determine the quality of water being produced by this well.

Normally, water tests are done primarily to check mineral and bacterial content. With increasing concern about radon (a radioactive gas that is potentially cancer causing), you may also wish to have the water tested for radon. A special request for this additional testing is normally required if you wish those results.

Where visible, the plumbing distribution piping in this home is primarily copper. This system was in operating condition at the time of the inspection.

Water pressures in the various plumbing fixtures were normal. Except as noted, all fixtures were tested and found to be in working order.

Most of the plumbing fixtures are quite old and more than normal routine repairs or replacement should be anticipated in the not-too-distant future.

The submersible pump could not be fully inspected. The visible equipment (tank, controls, etc.) is in fair condition.



Water was run in several of the fixtures for 30 minutes (approximately five gallons per minute). At the end of this period of time no variations or fluctuations in pressure or flow were noted.

The drain lines in this home consist of cast iron, ABS and lead piping. Where visible, this system is in fair condition at this time.

The cast iron and lead piping is older and upgrading over time should be planned for.

This home is apparently served by its own septic system. Of necessity, our evaluation of that system is limited to those portions normally visible during our inspection; specifically, the operation of the plumbing fixtures, the condition of the drain piping, and a visual examination of the apparent location of the system itself.

Most septic systems consist of either a cesspool (independent subsurface chamber) or septic tank and leaching bed (subsurface chamber plus drainage bed).

The configuration of this system is unknown. Its configuration can only be determined by excavation and direct examination of system components, unless drawings are available.

Normally, the septic tank should be pumped out every three or four years.

Tracer dye was introduced into the system prior to the start of the well testing. As noted above, water was run in several of the fixtures for 30 minutes (approximately five gallons per minute). No evidences of backups or leaks from any of the plumbing fixtures were noted.

Any septic system is unpredictable. While most will perform satisfactorily for many years, (assuming proper maintenance) even a new system can fail unexpectedly. Thus, you should not consider any evaluation of this system as an absolute guarantee of future performance.

The separate electric water heater is in operation. Its size appears adequate for the normal needs of this size house.

### Electrical

Our investigation of the electrical system is limited to the visible components, the entrance cable, meter box, service panel, outlets and switches, and the visible portions of the wiring. A larger portion of the electrical system is hidden behind walls and ceilings, and obviously, all the conditions relating to these unseen areas cannot be known. Where possible, the cover of the service panel is removed to investigate the conditions in it.



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While some deficiencies in the electrical system are readily discernable, not all conditions that can lead to interruption of electrical service, or that are hazardous can be identified.

Underground wiring is used on these premises. The condition of this wiring could not be determined at the time of the inspection.

A typical electrical system consists of two distinct components - the electric service entrance and the electric circuits. The service entrance determines the capacity of the electric power available to the property. The electric circuits distribute power through the building.

Electrical devices in a property typically use either 120 or 240 volts. The major appliances such as clothes dryers, kitchen ranges, water heaters, and electric heating units require 240 volts. General purpose circuits (lighting, outlets, etc.) require 120 volts.

The service entry conductors consist of aluminum.

The main service panel is located in the basement.

An auxiliary service panel is located in the basement.

The main service switch is located at the main service panel.

The electrical system, consisting of a three-wire 120/240 volt service with 60 amperes available, is just adequate to serve the electrical needs of this property as it now stands, but it is inadequate for modern electrical living. We recommend increasing the size of the incoming service to provide for greater amperage. A one-hundred ampere minimum service is recommended.

Also, when upgrading the electric service it may be necessary to relocate the electric meters from the basement to outside the building.

It would be wise to have each of the present circuits fully identified so you will know what electrical load is on each circuit. If you have any doubts, it is suggested that a competent electrician be consulted.

The electric service panels are older and while still serviceable upgrading these panels in the not-too-distant future should be anticipated.

The general condition of the wiring and fixtures is fair. A spot check of electrical outlets and switches revealed no major problems.



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The electrical distribution system is basically ungrounded. That is, the individual outlets do not provide for the grounding of appliances plugged into them. While this is not necessarily a serious problem, it is important that all appliances and lighting fixtures that you use are in good working order since the electrical system itself will not automatically protect deficiencies in any appliances plugged into it.

Although the electrical system is in an operable condition at this time, most of the wiring circuits have been installed for many years and the insulation of wiring this old tends to dry up. A short circuit in contact with dried out wooden framing members can be a fire hazard. Accordingly, the gradual replacement of these old circuits, in conjunction with your remodeling activities, is recommended.

Currently, there are a limited number of outlets in this property. While this need not be considered a deficiency, it may become an inconvenience. Additional circuits should be installed to provide a more convenient electrical system rather than using extension cords. Extension cords can become serious fire hazards.

The following improvements to the electrical system are recommended:

- Loose wires should be properly terminated or removed.
- Loose and temporary light fixtures should be improved.

The installation of ground fault interrupt (GFI) circuit breakers is recommended, particularly for the bathroom, the area by the kitchen sink, basement outlets, garage outlets, and exterior outlets. These circuit breakers are more sensitive than normal circuit breakers and therefore provide far better protection for you in these high risk areas.

The purpose of a GFI circuit is to provide positive protection against a shock hazard since it will "trip" almost instantaneously, thus protecting you. The GFI circuit breaker operates the same as other circuit breakers -- should it "trip," simply reset it for continuing operation. Periodically, you should test the GFI circuit breaker for proper operation. There is a test button either at the outlet itself or in the electrical service panel. When you push the test button, the GFI circuit breaker should trip to the off position.

For your safety, we suggest retaining a competent electrician to review the system, check the circuitry, correct various deficiencies and assure that everything is sound.

Overall, the electrical system is in fair condition.





### Interior

As a responsible homeowner, you are best able to judge the condition of the interior finish of the rooms. In this section of the report we are concerned with those things which are technically and financially significant. For example, stains which might indicate roof or plumbing leaks, older wall or ceiling materials which may require repair/replacement; the use of substandard materials on interior walls or ceilings; or the quality and condition of such items as the doors, windows, and cabinetry are those things which can affect the overall quality and condition of a home.

Overall, the quality of the materials used throughout this home is below average. The doors, windows, cabinetry, hardware, molding, etc. are serviceable but will require more than normal repairs to maintain them in serviceable condition. Also, the gradual replacement of these items within the next five to ten years should be anticipated.

The interior of this home consisted of a variety of materials including sheetrock, plaster and paneling.

The cracks in the interior of the house can be repaired when redecorating.

All evidence of leaks should be investigated and corrected as necessary. Some of these were noted on the ceiling of the left front second floor bedroom.

Squeaking floors are typically the result of loose floorboards which can be minimized by renailing or shimming.

Saggy floors are common in homes of this age. Bracing of the lower floor can improve this condition, but bracing of the upper level is not easily accomplished.

The tilework in the tub/shower area of the bathroom is in poor condition. Repairs are needed as soon as possible to prevent further moisture seepage into the wall and floor framing, which can result in more serious problems.

The interior doors in this home are of a standard quality and are in serviceable condition. While serviceable, the doors need some adjustment and minor repairs. This is typical with a home of this age.

The cabinetry in this home is of average to below average quality and it appears to have been installed properly. At the time of the inspection, it was in serviceable condition.

The wood trim and other woodwork in this home is of standard quality and workmanship.





All exhaust fans and exhaust ductwork should be cleaned and serviced.

The inspection checklists indicate which of the major appliances and equipment were tested at the time of inspection.

A number of the appliances are quite old and their serviceability is questionable. The reliable operation of these appliances should not be assumed.

### Exterior

The exterior walls of this building are covered primarily with wood clapboards. At this time, they are in good to fair condition.

Some exterior wood trim repairs and/or replacement are indicated. Specifically, the following was noted:

- Rot at the right rear entry door.
- Improve gaps in the soffit and fascia trim.
- Rot in the window trim at the right front of the house.

Repainting the exterior sidewalls and trim should be accomplished as soon as possible. Any new painting should be done only after all exposed wood has had an opportunity to dry, all loose paint is scraped away, and a proper primer is applied.

At the time of repainting we recommend that caulking compound be placed around all window and door frames, where they make contact with the sidewalls of the building as well as in the joints of different building materials. This caulking prevents drafts and possible moisture penetration. This is not expensive and is important.

In general, the windows in the building are old, and while in operable condition, maintenance and repairs will be an ongoing demand. You may wish to consider upgrading or rehabilitating the windows in the near future.

A few of the windows in this building are cracked and should be repaired. This is typical for a property of this age.



Generally, the putty work around individual window panes is serviceable. However, some touch-up work is indicated.

The basement bulkhead entry door is older and notably corroded. Upgrading this door in the not-too-distant future should be planned for.

### **Roofing**

The roof was observed from the ground using binoculars.

The roof covering of this home is of slate. The roofing is in good to fair condition.

Some slate roof repairs are indicated at this time. This includes the replacement of missing, broken, and loose slate.

The roofing over the formal entry at the front of the house is in need of repair.

With any roof, regardless of age, minor leakage should be expected from time to time. This can occur along the edges of the roof, at joints between different roof surfaces and around the chimney. Normally, these repairs are easily accomplished.

There were no gutters on this house.

### **Chimney, Hazardous Materials and Safety**

While some references to hazardous materials and code compliance may be made, our report is not to be considered a complete investigation for code compliance, toxic wastes in the adjacent soils, hazardous materials, or public records affecting this property. Such an investigation would be more costly and beyond the scope of our normal inspection.

Where visible, the center chimney appears to be in good to fair condition at this time. It appears to be structurally stable.

From all evidence available, this chimney appears to be lined.

Only a limited portion of the flue linings in this chimney were visible for inspection. Therefore, we recommend that it be cleaned as soon as possible and carefully inspected internally in order to fully assess its current condition.



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The open mortar joints and the cracks in the chimney above the roof should be properly sealed.

Currently, there are two combustion sources, the heating unit and coal stove on one chimney flue. While this may be functional, it is not recommended since draft problems may develop as well as other problems that could cause a fire in this chimney. This condition violates some building and fire codes.

This home is equipped with a coal stove in the living room. The installation of the stove is questionable. If the stove remains, we recommend modifying the installation to comply with current wood stove safety standards. These standards are typically available from the local fire department. Further, most fire departments are willing to review a stove installation to confirm its compliance with safe standards.

The hearth for this stove was noted to be substandard. Specifically, the hearth for this stove does not extend a full eighteen inches in front of the stove. Thus, some additional protection for the flooring in this area should be provided when using this stove.

The second floor stairway in this building is not equipped with handrails. For your safety, the stairway should be equipped with a solidly mounted handrail approximately 36 inches above the leading edge of each step, and normally on the right-hand side as you are descending.

This home is apparently equipped with an underground oil tank. With growing concern about contamination of subsurface water, it is important that this tank be checked regularly to make sure it is not leaking. A pressure test or other similar test that will confirm it is not leaking should be conducted every few years. Often, these services are available through your oil dealer.

A bottled gas tank is located outside this house. If kept well maintained, this tank is normally quite safe. However, it is important to be sure that all of the fittings are checked regularly, even if you are not using the gas and the tank is not being filled regularly. A leak in such a tank can cause a serious fire hazard and possible explosion.

This home is equipped with smoke detectors. We recommend that you test them monthly for proper operation.

We recommend the installation of a carbon monoxide detector for this home. Periodic testing of this device is recommended.

Evidence of vermiculate insulation was noted in this home. Recently it has been discovered that some vermiculate materials contain asbestos. While only a chemical test can confirm the presence of asbestos, this material should be handled with caution.



With increasing concern about radon contamination, you may wish to have an air test conducted to determine whether or not high levels of radon are present in this home. Exposed rock, deep wells, and portions of a home below ground level are frequent sources of this material. If discovered, radon is relatively easy to control through effective ventilation.

Since this home was apparently constructed and painted before 1977, it is quite likely that any older paint that remains (and it is virtually impossible to remove all paint from any home) may contain lead. Even lab analysis of a sampling of the paint in this house could not guarantee that no lead based paint exists anywhere. Thus, caution should be exercised when working around any of the painted surfaces, particularly during any remodeling work. Also, you should prevent children or pets from chewing on the woodwork.

The copper plumbing in this building may be joined with a lead-based solder. In 1986, Federal law prohibited the use of lead solder on pipes that carry drinking water. In addition, many plumbing fixtures, such as chrome-plated faucets, are made of brass, which contains lead. When water stands for several hours or more in plumbing systems containing lead, some lead may dissolve into the drinking water. To satisfy yourself that unhealthy levels of lead are not present, the water could be tested.

#### **General**

The following are a few additional comments that may be of interest to you regarding this property.

The trees and shrubs around this building are too close and will cause premature deterioration of the paint and siding. These should be trimmed to provide several inches clearance from the sidewalls and several feet above the roof.

Proper regrading to eliminate low areas around the building and ground sloping toward the building is needed.

Although there is no evidence of problems with the capacity of the well serving this property, private wells such as this can be unpredictable. Seasonal variations are common. Also, fluctuations are likely if other homes are built in the area.

Evidence of rodent activity was noted at the time of our inspection. This did not appear serious or extensive. If continued activity persists, we recommend appropriate extermination treatment. The activity noted was in the basement, crawl area and attic.



Vermont State Parks  
Attn: Mr. Ethan Phelps  
October 19, 2009

Your Property  
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### **Conclusion**

In general, keep in mind that many of the suggestions we have made in this report represent improvements to this property rather than deficiencies. Thus, much of the work we suggested can be handled as time, finances and personal preference dictate. Owning any home can be overwhelming. Thus, keep in mind that not all of the things we have recommended must be done immediately.

Additional data concerning this property are noted on the enclosed individual inspection sheets.

This report has been prepared in strict confidence with you as our client. No reproduction or re-use is permitted without express written consent. Further, we will not release this report to anyone without your permission.

This report is not to be used as a basis for determining the value of such premises. This report is not to be construed as a guaranty, or warranty of the premises or equipment therein or of their fitness for use. Since this was, as noted previously, a visual inspection of these premises, it is suggested that consideration be given to engaging the services of a competent contractor to determine the extent of the various defects/deficiencies noted herein and to provide cost estimates.

Many things have been discussed in this report. However, we realize that there may still be other things of interest to you that have not been discussed. Therefore, we encourage you to call with any additional questions you may have.

Thank you for the opportunity to be of assistance to you.

Sincerely,



Michael J. Foster, Jr.  
Board Certified Building Inspection Engineer

MJF/sjo  
Enclosures





Vermont State Parks  
Attn: Mr. Ethan Phelps  
October 19, 2009

Your Property  
Page 1

### Maintenance Plan

In addition to these general condition statements, this report covers repairs and maintenance. To help provide a perspective for the work that we have recommended for this home, the following schematic maintenance plan is offered. This list should not be considered all-inclusive. Surely, there will be other things you will want to do that can be made a part of this list during the next several years. Our purpose is to help you organize some of the work that we have recommended with emphasis on those things that need attention within the next year or so.

Within the next year of ownership:

- Pumping out and examining the septic tank
- Possible heating unit replacement
- GFI installation
- General electrical system repair
- Some electrical wiring upgrading
- Plumbing fixture repairs
- Well water testing
- Possible water pumping equipment repairs
- Possible water heater replacement
- Exterior trim repairs
- Exterior trim and siding painting
- Exterior caulking
- Window upgrade/rehabilitation
- Roofing repairs
- Chimney cleaning



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Attn: Mr. Ethan Phelps  
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Your Property  
Page 2

- General structural repairs (see report)
- Foundation crack repair
- Foundation wall repointing
- Foundation wall monitoring
- Crawl space upgrading
- Improve attic/soffit ventilation
- Insulation and weatherstripping
- General structural repairs (see report)
- Stair railing installation
- New electric service, 100 amp suggested
- Investigate underground oil tank
- Trim trees away from building
- Test smoke alarms monthly
- Test GFIs monthly
- Continued general maintenance
- Air quality test for radon

Within the next five years of ownership:

- Pumping out and examining the septic tank
- Continued annual heating unit maintenance
- Continued electrical wiring upgrading



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Your Property  
Page 3

- Slate roof maintenance
- Chimney cleaning
- Continued foundation wall repointing
- Continued foundation wall monitoring
- Test smoke alarms monthly
- Test GFIs monthly
- Continued general maintenance

Within the next ten years of ownership:

- Pumping out and examining the septic tank
- Continued annual heating unit maintenance
- Exterior trim and sidewall painting
- Chimney cleaning
- Test smoke alarms monthly
- Test GFIs monthly
- Continued general maintenance
- Slate roof maintenance



## INSPECTION CHECK LIST

Date: 10/15/2009 Job #: 09-27191 Weather: cloudy 45° Page 1 of 7  
 Inspected by: Michael J. Foster, Jr., P.E. Present: GLYNN FULGATA  
 For: Vermont State Parks  
 Attn: Mr. Ethan Phelps  
 Dept. of Forest Parks & Rec  
 100 Mineral St, Ste 304  
 Springfield VT 05156  
 Location: State of Vermont (Your Property)  
 2763 Sweet Pond Road  
 Guilford, Vermont 05301

## I. OUTSIDE

1. Ground Slope: Good ✓ Fair ✓ Poor ✓; Low Spots: Yes ✓; 2. No. Elec Wires: 3 Over ✓ Under ✓  
 3. Termite: None apparent ✓ Evidence of ✓  
 4. Exterior Walls: Brick ✓ Wood Siding ✓ Wood/Asbestos Shingles ✓ Stucco/Stone ✓ Aluminum ✓ Vinyl ✓  
 Other ✓ Condition: Good ✓ Fair ✓ Poor ✓  
 5. Roof: Asphalt Shingles ✓ Slate ✓ Wood Shingles ✓ Built-Up ✓ Membrane ✓ SS Metal ✓ Cor Metal ✓  
 Other ✓ Condition: Good ✓ Fair ✓ Poor ✓ Plumbing VTR ✓  
 6. Gutters & Leaders: PVC ✓ Aluminum ✓ Galv. ✓ Copper ✓ None ✓; Drains/Dry Wells: Yes ✓ No ✓  
 Condition: Good ✓ Serviceable ✓ Poor ✓ Repair/Replacement: Yes ✓ No ✓  
 7. Putty: Serviceable ✓ Required ✓; Panes Cracked: Yes ✓ No ✓ Not Visible ✓  
 8. Caulking: Serviceable ✓ Required ✓; At Chy. ✓; Diff. Mat. ✓  
 9. Stormsash: Wood ✓ Alum. ✓ Steel ✓ None ✓ Not All ✓ Needed on Non-Thermopane Fixed Panes ✓  
 Condition: Good ✓ Serviceable ✓ Poor ✓; Repairs Indicated: Yes ✓ No ✓  
 10. Exterior Paint: Good ✓ Fair ✓ Required ✓ on trim ✓ on exterior walls ✓ REPAIRS NEEDED  
 11. Trim Repairs/Replacement Indicated: Yes ✓ No ✓ 13. Cracks in Foundation Wall: Yes ✓ No ✓ Not Visible ✓  
 12. Wall Insulation: None Apparent ✓ Evidence of 3" ✓ 6" ✓ Type ✓

OLD WINDOW, MISSING CURVED WINDOW IN REPAIRS NEEDED  
NO STAIRS REPAIRS NEEDED  
ROT IN WINDOW TRIM STAIN IN WINDOW TRIM ROT AROUND RE  
RE TRIM STAIN IN WINDOW TRIM REPAIRS NEEDED  
REPAIRS NEEDED STAIN IN WINDOW TRIM REPAIRS NEEDED  
STAIN IN WINDOW TRIM REPAIRS NEEDED STAIN IN WINDOW TRIM

## II. BASEMENT/UTILITY ROOM/CRAWL AREA; MECHANICAL/ELECTRICAL

1. Walls: Concrete ✓ Block ✓ Stone ✓ Others ✓; Cond ✓ Fair ✓ Poor ✓; Cracks: Yes ✓ No ✓ Not Visible ✓  
 2. Evidence of Moisture-Seepage Penetration: Yes ✓ No ✓ STAIN ON WALLS, FLOOR  
 3. Floor: Concrete ✓ Other ✓; Good ✓ Fair ✓ Poor ✓; Cracks ✓ Badly Cracked ✓  
 4. Termite: None apparent ✓ Evidence of ✓  
 5. Columns: Steel ✓ Wood ✓ Other ✓; None ✓ Few Visible ✓ Not Visible ✓  
 Condition: Good ✓ Fair ✓ Poor ✓  
 6. Girders: Steel ✓ Wood ✓ None ✓; (Not) (Part) Visible ✓; Condition: Good ✓ Fair ✓ Poor ✓  
 7. Floor Joists: Size & Spacing ✓; (Not) (Few) Visible ✓; Condition: Good ✓ Fair ✓ Poor ✓  
 8. Heating System: Oil ✓ Gas ✓ Electric ✓; Hot Water ✓ Steam ✓ Hot Air ✓  
 Condition: Operating ✓ Poor ✓; Needs Cleaning ✓  
 9. Central Air Conditioning System: N/A; Operating: Yes ✓ No ✓; Ductwork Insulated: Yes ✓ No ✓  
 10. Hot Water System: Instant w/Heating System ✓; Gas ✓ Elec ✓ Oil ✓ WATER, BOILER, 2006  
 11. Plumbing: Copper ✓ Brass ✓ Galv. Iron ✓; Condition: DWV material: PVC ✓ ABS ✓ CI ✓ CU ✓ Lead ✓  
 12. Plumbing Repair Indicated: Yes ✓ No ✓; Insulate Cold Water Pipes: Yes ✓ No ✓  
 13. Heating Unit Ventilation: Good ✓ Fair ✓ Poor ✓; 13. Door: Serviceable ✓ Poor ✓  
 14. Electric: Amperes ✓ Circuits ✓ Voltage: 120/240 ✓ 120 ✓; Main: Yes ✓ No ✓  
 Wiring is: Adequate ✓ Just Adequate ✓ Inadequate ✓ Rewire ✓; Circuits overfused ✓ Breakers ✓ OK - OLD -  
TEMP JACK POSTS ROT IN OLD POSTS REPAIRS NEEDED  
VENTILATION ON PANORAMA POSTS ADON USED IN 30 YRS  
BASE FLOOR (POST) REPAIRS NEEDED  
ROT IN SILL PLANE FRONT  
OLD CI JOIST PIPE

## III. ATTIC AREA

1. Roof Rafters: Size/Spacing ✓ Floor Joists: Size/Spacing ✓  
 2. Insulation: Floor ✓ Walls ✓ Roof ✓ None ✓ Not Visible ✓; Good ✓ Adeq ✓ Inadeq ✓; 3. Flooring: Yes ✓ No ✓ Partial ✓  
 4. Ventilation: Ridge ✓ Soffit ✓ Gable ✓ Roof ✓ None ✓ Provent: Yes ✓ No ✓ Adequate: Yes ✓ No ✓  
 5. Access: Serviceable ✓ Poor ✓ None ✓; 6. Windows: No ✓ 7. Roof leaks: None apparent ✓ Evidence of ✓

## IV. REMARKS AND SUGGESTIONS

- TRIM TRIM  
ADD PLASTIC TO RT CROWN MOULD  
ADD VENTS TO RT CROWN  
INSIDE DUCT IN RT CROWN

## V. OTHER

1. Water: Private ✓ Municipal ✓  
 2. Waste Disposal: Private ✓ Municipal ✓  
TRIM UNUSUAL WALLS



## ROOM-BY-ROOM INSPECTION CHECK LIST

Date: 10/15/2009

Job #: 08-27191/Vermont State Parks

Engineer: Michael J. Foster, Jr., P.E.

Page 2 of 3

ROOM: 50702 Rear-

1. Ceiling: Plaster Sheetrock Other Papered Painted  
Cracked: Yes No; Evidence of Leak Leak on Wall Ceiling Investigate
2. Walls: Plaster Sheetrock Tile Other Papered Painted
3. Windows: No. Weatherstripped: Yes No; Cords Broken: Yes Adeq. Dress
4. Electric outlets: Number 2
5. Floor: Wood Tile Vinyl Carpet Condition: Good Fair Poor; Slope: Yes No
6. Trim: Wood Tile Steel Condition: Good Fair Poor
7. Hardware (locks, knobs, etc.): Condition: Good Serviceable Poor
8. Heating Number Radiators Convectors Grills Baseboard Rad. H't'g Pipe Riser
9. Doors: Exter. Weatherstripped: Yes No Cond.: Good Fair Poor; Need Adj./Repair: Yes No
10. Plumbing fixtures: Yes No; Good Operating Poor Faucet Leak: Yes No
- Pressure: Normal Below Normal Grouting needed at Tub/Shower Tile: Yes
11. Cabinets: Kitchen Medicine None
12. Stove (Gas) (Elec.); Refrigerator None Good Operating Old
13. Fireplace: Yes No; Not Tested Appears Serviceable Poor Repair Dumper: Yes No

- only - no pictures + underlined

ROOM: Kitchen - Dining - LR - BR - Bath

1. Ceiling: Plaster ☒ Sheetrock ☒ Other PANEL Papered ☐ Painted ☐  
Cracked: Yes ☐ No ☒ Evidence of Leak ☒ Leak on Wall ☐ Ceiling ☐ Investigate ☐
2. Walls: Plaster ☐ Sheetrock ☐ Tile ☐ Other ☐ Papered ☐ Painted ☐  
3. Windows: No. ☐ Weatherstripped: Yes ☐ No ☒ Cords Broken: Yes ☐ Adeq. Egress ☒
4. Electric outlets: Number ☐ NO GFI IN KITCHEN OR BDR
5. Floor: Wood ☐ Tile ☐ Vinyl ☐ Carpet ☐ Condition: Good ☐ Fair ☐ Poor ☐ Slope: Yes ☐
6. Trim: Wood ☐ Tile ☐ Steel ☐ Condition: Good ☐ Fair ☐ Poor ☐
7. Hardware (locks, knobs, etc.): Condition: Good ☐ Serviceable ☐ Poor ☐
8. Heating Number ☐ Radiators ☐ Convector ☐ Grills ☐ Baseboard ☐ Rad. H'g ☐ Pipe Riser ☐
9. Doors: Exter. ☒ Weatherstripped: Yes ☐ No ☒ Cond.: Good ☐ Fair ☐ Poor ☐ Need Adj./Repair: Yes ☐
10. Plumbing fixtures: Yes ☐ No ☒ Good ☐ Operating ☐ Poor ☐ Faucet Leak: Yes ☐ NO
- Pressure: Normal ☐ Below Normal ☐ Grouting needed at Tub/Shower Tile: Yes ☐
11. Cabinets: Kitchen ☐ Medicine ☐ None ☐
12. Stove ☐ (Gas ☐ Elec. ☐); Refrigerator ☐ None ☐ Good ☐ Operating ☐ Old ☐
13. Fireplace: Yes ☐ No ☒ Not Tested ☐ Appears: Serviceable ☐ Poor ☐ Repair Damper: Yes ☐

- OLD WINDOWS.
- SHOWER ENCLOSURE
- TILE WORK - DONE.
- FLOW ABOVE
- COAL STOVE
- IN LOT
- SWISS NESTED UNDER COAL STOVE.
- NOISE FROM GUTTER
- IN BATHROOM

ROOM: TOP FLOOR

1. Ceiling: Plaster ☒ Sheetrock ☒ Other \_\_\_\_\_ Papered ☒ Painted ☒  
Cracked: Yes ☒ No ☒ ; Evidence of Leak: Y Leak on Wall \_\_\_\_\_ Ceiling \_\_\_\_\_ Investigate \_\_\_\_\_
2. Walls: Plaster ☒ Sheetrock ☒ Tile \_\_\_\_\_ Other \_\_\_\_\_ Papered ☒ Painted ☒  
3. Windows: No. \_\_\_\_\_ ; Weatherstripped: Yes ☒ No ☒ ; Cords Broken: Yes \_\_\_\_\_ Adeq. Egress \_\_\_\_\_
4. Electric outlets: Number Four outlets
5. Floor: Wood ☒ Tile \_\_\_\_\_ Vinyl \_\_\_\_\_ Carpet \_\_\_\_\_ Condition: Good ☒ Fair ☒ Poor \_\_\_\_\_ ; Slope: Yes \_\_\_\_\_
6. Trim: Wood \_\_\_\_\_ Tile \_\_\_\_\_ Steel \_\_\_\_\_ Condition: Good ☒ Fair ☒ Poor \_\_\_\_\_ ;  
7. Hardware (locks, knobs, etc.): Condition: Good ☒ Serviceable \_\_\_\_\_ Poor \_\_\_\_\_ ;
8. Heating Number 0 ; Radiators \_\_\_\_\_ Convectors \_\_\_\_\_ Grills \_\_\_\_\_ Baseboard \_\_\_\_\_ Rad. Htg \_\_\_\_\_ Pipe Riser \_\_\_\_\_
9. Doors: Exter: 0 Weatherstripped: Yes ☒ No ☒ Cond.: Good ☒ Fair ☒ Poor \_\_\_\_\_ ; Need Adj./Repair: Yes ☒ ;  
Interior \_\_\_\_\_ Condition: Good ☒ Fair ☒ Poor \_\_\_\_\_ ; Need Adj./Repair: Yes ☒ ;
10. Plumbing fixtures: Yes ☒ No ☒ ; Good \_\_\_\_\_ Operating \_\_\_\_\_ Poor \_\_\_\_\_ ; Faucet Leak: Yes \_\_\_\_\_  
Pressure: Normal \_\_\_\_\_ Below Normal \_\_\_\_\_ ; Grunting needed at Tub/Shower Tile: Yes \_\_\_\_\_
11. Cabinets: Kitchen \_\_\_\_\_ Medicine \_\_\_\_\_ None \_\_\_\_\_
12. Stove \_\_\_\_\_ (Gas \_\_\_\_\_ Elec. \_\_\_\_\_) ; Refrigerator \_\_\_\_\_ None ☒ ; Good \_\_\_\_\_ Operating \_\_\_\_\_ Old \_\_\_\_\_
13. Fireplace: Yes ☒ No ☒ ; Not Tested \_\_\_\_\_ ; Appears: Serviceable \_\_\_\_\_ ; Poor \_\_\_\_\_ Repair Damper: Yes \_\_\_\_\_

1.5. Response: Yes No Not tested Appears Serviceable Foot Report Number: 1CS

• RT Room Room - UNTESTED • LEAKY LOCK LAMP • FAN

USED BY WORK - 3184P. • FANS ON SECOND

• UNTESTED WIRE • LEAKY CEILING FLOOR

FURNITURE. STAIR TREADS

BACK ON

COAST TO COAST ENGINEERING SERVICES, 1989

COAST TO COAST ENGINEERING SERVICES, 1989



## SUPPLEMENTAL INSPECTION CHECK LIST

Date: 10/15/2009

Job #: 08-27191/Vermont State Parks

Engineer: Michael J. Foster, Jr., P.E.

Page 2 of 3

1. Overall, maintenance has been: Good ☒ Fair ☐ Poor ☐
2. Overall, current condition is: Above Average ☐ Average ☐ Below Average ☒
3. Access:
- 3.1 Inaccessible crawl spaces: Yes ☒ No ☐ Partial ☐
- 3.2 Inaccessible attic spaces: Yes ☒ No ☐ Partial ☐
- 3.3 Evidence of rot or other problems in inaccessible areas? Yes ☐ No ☒ Uncertain ☐
- 3.4 Recommend further investigation: Yes ☐ No ☒
4. Structure:
- 4.1 Some structural repairs are required soon: Yes ☒ No ☐
- 4.2 Number of outdoor decks: 0 Condition: Good ☐ Fair ☐ Poor ☐
- 4.3 Number of porches: 0 Condition: Good ☐ Fair ☐ Poor ☐
- 4.4 General quality of structure: Good ☒ Fair ☐ Poor ☐
5. Electric:
- 5.1 Where visible, wiring consists of BX ☒ Romex ☐ Knob and Tube ☐ Fabric ☐
- 5.2 General condition of wiring: Good ☐ Fair ☐ Poor ☐
- 5.3 Outdoor/underground wiring: Yes ☒ No evidence ☐ (to well)
- 5.4 Entrance panel: Old ☒ New ☐ Good ☐ Fair ☐ Poor ☐
6. Security:
- 6.1 Alarm system: Yes ☐ No ☒ Not visible ☐
- 6.2 Locks on windows: Yes ☐ No ☒ Partial ☐
- 6.3 Door locking hardware: Good ☐ Fair ☐ Poor ☐
- 6.4 Smoke alarms: Yes ☐ No ☒ Operating: Yes ☐ No ☐ Not all ☐
- 6.5 Carbon monoxide detectors: Yes ☐ No ☒ Operating: Yes ☐ No ☐ Not all ☐
- 6.6 Hand rails on stairs: Yes ☐ No ☒ Not all ☐
7. Chimneys:
- 7.1 Number ☒ Type: Block ☐ Brick ☐ Other ☐
- 7.2 Use: Oil ☐ Gas ☐ Wood ☐ Coal ☒
- 7.3 Multiple use of single chimney: No ☐ Yes ☐ Not visible ☐
- 7.4 Multi-flue chimney: Yes ☒ No ☐ No. of flues ☐
- 7.5 General condition: Good ☒ Fair ☐ Poor ☐
- 7.6 Chimneys lined: All ☐ None ☒ Partial ☐ Not visible ☐
- 7.7 Chimney caps: Yes ☒ No ☐
8. Hazardous materials:
- 8.1 Evidence of asbestos insulation: Yes ☒ No ☐ Not visible ☐
- 8.2 Evidence of UFFI: Yes ☐ No ☒ Not visible ☐
9. General:
- 9.1 Garage: Serviceable ☒ Poor ☐ Fire Separation in Garage: Yes ☐ No ☐ Step Down: Yes ☐ No ☐
- 9.2 Electric garage door opener: Yes ☐ No ☒ Operating: Yes ☐ No ☐ Safety cables: Yes ☐ No ☐
- 9.3 Underground oil tank: Yes ☐ Not evident ☒
- 9.4 Distance between well and septic system: Adequate ☐ Substandard ☐ Not visible ☒
10. Additional investigative work recommended:
- 10.1 Pump out and evaluate septic tank: Yes ☒
- 10.2 Test air quality: Yes ☐ No ☒
- 10.3 Radon Mitigation System: Y ☐ N ☒ Termination ☐ Marked ☐ Pressure Gage ☐ Fan Location ☐
- 10.4 Investigate inaccessible areas: Yes ☒
11. Energy Code Certification: Required: Yes ☐ No ☒ Provided: Yes ☐ No ☐
12. Other comments:
- NOTE OVER SUMMER RAIN:
- DISTURBANCE
  - FLOWLINE
  - INSUL. NOT VISIBLE

COAST TO COAST ENGINEERING SERVICES, 1989

# CRITERIUM<sup>®</sup> LALANCETTE ENGINEERS

PO BOX 6348  
RUTLAND, VT 05702-6348  
TEL 802 747-4535  
800 639-4535  
FAX 802-775 2307  
E-MAIL info@criterium-lalancette.com

## AGREEMENT FOR SERVICES - Building Inspection

This is the complete agreement regarding engineering services to be provided by Criterium-Lalancette Engineers (ENGINEER) related to the property described below. This is intended to be a legally binding agreement. Please read it carefully.

Client(s) Full Name(s):	Vermont State Parks Attn: Mr. Ethan Phelps Dept. of Forest Parks & Rec 100 Mineral St, Ste. 304 Springfield VT 05156	Property:	State of Vermont Job #27191 2763 Sweet Pond Road Guilford Vermont 05301
Schedule: Day: Thursday Date: 10/15/2009 (extreme weather permitting) Time: 1:00 pm (approximate)			
Description of Property:			
Approximate age or year built?	80-100	Property type?	Single Family
Approximate size? (sq. footage)	1200?	Additional buildings?	No
Inspection services to be provided:		Testing services to be provided:	
<input checked="" type="checkbox"/> Standard Inspection	\$395.00	<input type="checkbox"/> Standard Water Test	
<input type="checkbox"/> Standard Inspection - Other		<input type="checkbox"/> Radon-Air Test	
<input type="checkbox"/> Exhaustive Inspection		<input type="checkbox"/> Radon-In-Water Test	

Total Fee for the inspection and testing services is \$395.00. Fees could change if physical property information provided to our office varies from that provided above (i.e.: building type, other buildings to be inspected, square footage, etc.). **A 48-hour notice of cancellation is requested. Otherwise, a cancellation fee of \$150.00 plus fees for advance testing services administered as part of this inspection will be charged to your credit card.**

All inspections are performed in accordance with the Standards of Practice of the National Academy of Building Inspection Engineers (NABIE), a copy of which is available on request or at [www.nabie.org](http://www.nabie.org). While we will report readily visible evidence of mold infestations, this inspection should not be considered a specific mold investigation of any kind.

The results of the inspection will be provided in a written report prepared exclusively for your benefit. Reports are typically available 2-3 business days following the inspection, unless prior arrangements are made. If two trips need to be made to the property, testing may be started early. However, some test results may take longer.

You are encouraged to be at the inspection to discuss your questions and concerns. However, **the written report is the exclusive source of information regarding our observations and conclusions.** All discussions that occur at the inspection are preliminary in nature and should not be the basis for any final decisions regarding this property. Further, owning any property involves some risk. No inspection can reveal everything that might be of interest or significance to you regarding this property.

Our inspection is not a **guarantee or warranty** regarding the condition of this building. Except as otherwise noted herein, our maximum liability for loss suffered by the CLIENT due to any cause is limited to our inspection fee. If you bring an action against the ENGINEER and the ENGINEER prevails, ENGINEER shall be entitled to recover costs and expenses, including reasonable attorneys' fees and costs.

Client Initial  
Page 1 of 2

Engineer Initial

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Effective January 27, 2007

### LICENSED PROFESSIONAL ENGINEERS

BUILDING INSPECTIONS  
ANALYSIS & DIAGNOSTICS  
RESERVE STUDIES  
CAPITAL NEEDS ASSESSMENTS  
ENVIRONMENTAL TESTING



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[www.criterium-lalancette.com](http://www.criterium-lalancette.com)

Job#: 27191/Mr. Phelps

**AGREEMENT FOR SERVICES (continued)**  
**Building Inspection**

**CHOICE OF INSPECTION SERVICES:**

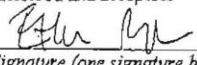
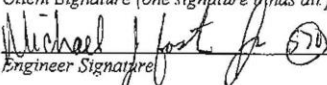
*After reviewing these descriptions, both the client and engineer should initial where noted, to indicate the type of inspection chosen. As our client, you are making a choice of services to be provided. If you have any questions, please contact us immediately.*

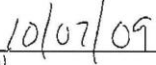
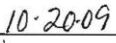
 Client Initial  Engineer Initial	<b>STANDARD INSPECTION:</b> A limited visual inspection to identify significant deficiencies and/or repairs needed in the major systems (structural, heating, air conditioning, plumbing, electrical, roof, exterior) as well as provide a general understanding of the property. This is a limited inspection based on visible evidence readily available during the inspection (without moving furnishings, removing finishes, etc.) and is the opinion of the engineer performing the inspection.
--	--

Client Initial  Engineer Initial	<b>EXHAUSTIVE INSPECTION:</b> A STANDARD INSPECTION PLUS invasive testing and/or equipment disassembly as approved by client and property owner, in advance, to gather all reasonably available and relevant information about the property. This inspection is specifically <b>not limited</b> to readily available visible evidence and requires invasive testing which may include moving furnishings, removing wall coverings and/or drilling into wall cavities (to check for structural damage, for example) and requires the current owner's written permission. Unlike the Standard or Limited Inspection, our <b>maximum liability for loss suffered by the CLIENT due to any cause is limited to our inspection fee or \$10,000.00, whichever is greater.</b> In addition, because of the additional services provided under an Exhaustive Inspection, the results of the inspection will be provided in a written report, typically available within 5 business days after the inspection unless prior arrangements are made.
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**MOLD EXCLUSION:** This inspection is not for the specific purpose of determining the presence of organic substances in the building. If, however, during the inspection, we knowingly encounter such substances, we will notify you of the presence of these substances without accepting any liability whatsoever for any damage or harm caused by the substances. It is your responsibility to determine if further testing is required and to retain an independent, qualified professional to perform such tests.

The above is understood and accepted.

  
 Client Signature (one signature binds all parties)  
  
 Engineer Signature

  
 (Date)  
  
 (Date)



## **PROFESSIONAL QUALIFICATIONS AND EXPERIENCE**

**Michael J. Foster, Jr., P.E.**

### **Area of Expertise**

Michael Foster is a Registered, Professional Engineer in Vermont, New Hampshire and Massachusetts. He conducts commercial and residential building inspections for real property owners, buyer, and sellers.

### **Qualifications**

Mike joined Criterium-Lalancette Engineers in June of 2003 and has since conducted over 2,000 home and building inspections. Before joining Criterium-Lalancette Engineers, Mike was employed by SVE Associates, in Brattleboro, Vermont, as a Senior Engineer and Manager of their Greenfield, Massachusetts branch office. He was responsible for day to day office operations and for managing the design and permitting of land development and public works projects. During his tenure with SVE, Mike acted as owner's representative on many construction projects ensuring they were built according to specifications and authorizing progress payments.

In addition to SVE Associates, Mike was employed by Stevens Associates, P.C, in Brattleboro, Vermont as an engineering project manager and has worked as an independent consultant specializing in land development engineering.

Before entering the engineering field, Mike was employed by Jerry Tucker Builder, in Ludlow, Vermont. With Tucker, he gained first hand experience in all phases of new home construction including footings and foundations, framing, insulation, sheetrock, roofing and finish work.

### **Education**

Mike is a licensed, Professional Engineer in Vermont, New Hampshire, and Massachusetts, Board Certified by the Building Inspection Engineering Certification Institute (BIECI), and a Certified American Society of Home Inspectors (ASHI) Inspector. He holds a Bachelor of Science degree in Civil Engineering from the University of Vermont. Additionally, he holds an Associate of Science degree in Civil Engineering Technology, with honors, from Vermont Technical College.

Mike is also a LEED Accredited Professional, demonstrating, through examination, a thorough understanding of green building practices and principles, and familiarity with LEED requirements, resources and processes.

Mike is also a member of the National Society of Professional Engineers (NSPE).



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### Pre-Title Check List

The attached report is intended to focus on the major engineering systems (structure, heating and cooling, plumbing and electric) in the building you are considering. While spot checks of many components (such as switches, outlets, fixtures, etc.) were made during the inspection and any significant deficiencies noted in this report, it's important to understand that the condition of these components can change at any time. Therefore, we highly recommend at least one more visit be made to these premises before taking title. This checklist is offered as a guide for that final visit.

Allow sufficient time to comfortably complete the list. Please note that not all of these items will apply to every building.

- |   |  |
|---|--|
| <input type="checkbox"/> Dishwasher             | <input type="checkbox"/> Electrical outlets      |
| <input type="checkbox"/> Garbage disposal       | <input type="checkbox"/> Light fixtures          |
| <input type="checkbox"/> Stove                  | <input type="checkbox"/> Fireplace/Stove         |
| <input type="checkbox"/> Refrigerator           | <input type="checkbox"/> Leaks (wall, ceiling)   |
| <input type="checkbox"/> Clothes washer         | <input type="checkbox"/> Broken glass            |
| <input type="checkbox"/> Clothes dryer          | <input type="checkbox"/> All window screens      |
| <input type="checkbox"/> Water pump             | <input type="checkbox"/> Window locks            |
| <input type="checkbox"/> Water heater           | <input type="checkbox"/> Door locks and latches  |
| <input type="checkbox"/> Sump pump              | <input type="checkbox"/> All keys available      |
| <input type="checkbox"/> Heating system         | <input type="checkbox"/> Alarm/Security systems  |
| <input type="checkbox"/> Electric heaters       | <input type="checkbox"/> Garage door opener(s)   |
| <input type="checkbox"/> Air conditioning       | <input type="checkbox"/> Swimming pool equipment |
| <input type="checkbox"/> Central vacuum system  | <input type="checkbox"/> Lawn sprinkler          |
| <input type="checkbox"/> Plumbing fixtures      | <input type="checkbox"/> Sidewalks               |
| <input type="checkbox"/> Whirlpools/Spas/Saunas | <input type="checkbox"/> Driveways               |
| <input type="checkbox"/> Tile work in bath      | <input type="checkbox"/> Septic/waste system     |

Often weeks and months pass between our initial inspection and your closing on the property. Your involvement in making this final inspection will help assure you of the home you deserve.

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### Glossary

**Alligatoring:** Square-patterned grain cracking of paint surface often caused by too many layers.

**Amperage:** An ampere is a measure of the "volume" of electrical current available. The more amperage available, the more electrical devices can be connected to the system.

**Anchor Bolt:** L-shaped bolt with threaded end that connects the wooden sill to the top of the foundation wall.

**Armored Cable:** Commonly called BX; a moderately flexible metal sheathed cable.

**Artesian Well:** A well which penetrates a confined subsurface water source which is under sufficient pressure to cause the water to rise in the well casing itself.

**Backfill:** Loose fill graded against masonry walls in an open excavation, covered with topsoil.

**Back Flow Prevention Device:** On hot water steam boiler a one way flow valve. Also, called a non-return valve. It also keeps the water from the boiler from getting in to the drinking water.

**Bearing Wall:** Walls that transfer structural loads from building components above them.

**Bleeding:** 1) Removing trapped air from radiators, convectors, or 2) the appearance of discoloration or stains under a finished, surface coat.

**Blistering:** Bubbles in paint. These are often caused by excessive moisture working through the wall from the inside.

**Block:** Generally, any masonry unit larger than a brick; usually set in mortar as in a block wall.

**Boiler:** A heating unit in which hot water or steam is produced.

**Bowed:** Unsatisfactory timber (specifically framing members) that has been stored or dried unevenly, resulting in a natural curve along its length.

**Bridging:** Stiffeners fitted between floor joists; common bridging is an X-pattern, solid bridging is a short length of same-size floor joist timber.

**BTU:** British Thermal Unit-a heat measurement.

**Building Paper:** Thick, pinkish paper used between plywood subfloor and finished flooring.

**Built-Up Roofing:** Layers of asphalt-based roofing overlapped, sealed and bonded with hot tar; applied to flat roof decks.

**BX:** Common term for semiflexible, metal-encased electrical wiring.

**Cesspool:** A subsurface waste water disposal chamber with no attached drainage field (leach bed).

**Checking:** A short, narrow crack along the grain of structural timbers. Different from a split that

goes through the full thickness of the wood.

**Check Valve:** Fitting that prevents the reverse flow of water in piping; commonly used on sump pump installations or floor drains.

**Chlordane:** Poisonous chemical used for eradicating termites.

**Circuit Breaker:** Switches mounted in the main electrical panel that trip automatically to prevent overloading the circuit.

**Circulator:** Pump and motor mounted on hot water furnace that pushes heated water through the piping system.

**Clear Lumber:** The highest grades of lumber, free from visible defects and knots.

**Clerestory:** The upper portion of a wall containing windows for supplying natural light to the building.

**Closed Valley:** Pattern of overlapping, interlaced shingles across the intersection of two sloping roofs. An open valley uses metal flashing.

**Combustion Efficiency:** A measure of the amount of fuel burned that actually produces heat. For example, 75% combustion efficiency means 75% of the fuel burned is producing heat.

**Compactness:** As it relates to energy efficiency and interior traffic flow, compactness suggests the maximum amount of interior space for the minimum amount of exterior wall area. A sphere (while impractical) would represent the most compact shape and floor plan a home could have.

**Compressor:** Mechanical heart of a cooling system that forces refrigerant through the system.

**Counter flashing:** A metal strip that covers the top edge of conventional flashing (frequently used around chimneys); allows for expansion and contraction between different building materials without breaking the flashing seal against the weather.

**Course:** One row of shingles, bricks or masonry block placed horizontally.

**Crawl Space:** Area between the floor joists and the ground surrounded by the foundation wall.

**Creosote:** Liquid chemical applied to raw timber that protects it from the weather.

**Crocket:** Metal flashing placed on the "up-roof" side of the chimney to deflect roof water to either side of the chimney.

**Deflection:** Downward force on rafters, joists and girders, causing the center of the timber to bow downward over the center of the span.

**Drip Bead:** Common form of capillary break groove cut under window sills.

**Drip Edge:** Lengths of L-shaped metal flashing placed along the edges of a roof to seal the space

between the shingles and the roof deck from the weather.

**Drv Rot:** Timber decay characterized by sponginess and crumbling; caused by dampness and spread by a bacteria.

**Drywall:** Common form for paper-finished gypsum wallboard, also called sheetrock.

**Drv Well:** Rock-filled hole in the ground to collect and distribute roof water or excessive ground water.

**Dug Well:** A dug well is usually not more than ten or twenty feet deep and penetrates a subsurface water source (ground water) close to the surface.

**Eaves:** The overhanging section of a sloping roof.

**Efflorescence:** White powder residue on concrete masonry, usually indicates moisture migration through concrete.

**Fascia:** A wide vertical board running horizontally across the ends of the rafters.

**Felt Paper:** Common term for asphalt-impregnated building paper applied between wood roof decking and shingles.

**Flashing:** Metal stripping to seal seams between sections of roofing or between roofing and other materials or metal caps sealing the joint between upper door and window frames and exterior siding.

**Floor Zones:** Areas of a floor plan that can be distinguished by their function. For example, garage, workshop, hobby area, kitchen, family area, etc.

**Footings:** Enlargement at the base of a foundation wall to support and distribute the load.

**Forced Air:** An air conditioning or heating system that relies on a motor-driven fan for distribution.

**Foundation:** Lower part of the building that supports the superstructure.

**Frame:** The skeleton of a home including the major framing members such as rafters, studs and joists.

**Furnace:** A heating unit in which hot air is produced.

**Gable:** Triangular section of the end wall of a building with a sloping roof.

**G.F.C.I. (or G.F.L.):** Ground Fault Circuit Interrupter, a quick-tripping circuit breaker that can cut off power 25 milliseconds after detecting current leakage. NOTE-The National Electrical Code now requires these circuit breakers in all newly built bathrooms, exterior outlets and kitchens.

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**Ghosting:** Darkening and discoloration of wallboard nailheads and compound-filled wallboard joints caused by unequal temperature and moisture transmission through the wall.

**Girder:** Timber (sometimes a steel I-beam) that supports beams and floor joists.

**Gravity Distributed:** In heating systems, hot water and hot air are sometimes distributed by the natural thermal currents within the air or water. This is referred to as gravity distribution.

**Ground Wire:** Electrical wire that protects against shock hazards by transferring leaking or abnormal current back through the grounding system into the earth.

**Hard Water:** Water with a high mineral content.

**Header:** Timber across an opening in the framing system that supports framing members interrupted by the opening.

**Heat Pump:** A year-round heating and cooling plant best suited to moderate climates; technically a compressor-driven, refrigerant cooling system that functions as a heater when the cooling cycle is reversed.

**Heaving:** Upward pressure of earth caused by frost action.

**Insulation:** Any material which effectively restricts the flow of heat (thermal transmission) through it. Fiberglass, cellulose, styrofoam, etc. are common examples.

**Jack Stud:** Part-height support stud placed beneath the ends of a header across an opening, nailed to a full-length stud that extends above the header.

**Joist:** Wood or steel framing member directly supporting a floor or ceiling.

**K.D.** Short for kiln-dried, signifying lumber with extreme dimensional stability due to low moisture content.

**Leaching Field:** Elongated, buried piping or chamber system placed beyond the septic tank in a waste disposal system which gradually filters liquid wastes into the earth.

**Leader:** Vertical pipe running between the gutter and the ground or an underground piping system.

**Ledger:** Timber nailed flush with the bottom of a beam or joist, used to support a timber butting at right angles.

**Light:** Individual panel of glass, describing the design of a double-hung window as in 8 over 8 lights.

**Lintel:** Structural member across the top of an opening, commonly a stone or masonry equivalent to a wood frame header.

**Loop:** Self-contained circuit of a hot water heating system.

**Nosing:** Rounded extension of a stair tread that projects beyond the vertical riser.

**PVC:** Polyvinylchloride—a type of “plastic” pipe used commonly for drain lines and less commonly for water distribution lines.

**Perimeter Drain:** A common reference for a system of drain pipes located at the base of the foundation wall to collect and carry water away from a basement space.

**Permeability:** A measure of the ability for vapor (moisture, air, etc.) to pass through a

substance. For example, a window pane is less permeable than a screen.

**Pier:** Masonry load-bearing support independent of the main foundation.

**Pitch:** Commonly the angle of a sloping roof; the ratio of height to the span (as in 4 on 12).

**Plate:** Single or double layer of 2 x 4 or 2 x 6 along the top of a stud wall.

**Plenum:** Enclosed air chamber.

**Plumb:** Perfectly vertical, at right angles to a perfectly level line.

**Pointing:** Cleaning loose mortar from joints between masonry (also called raking the joints) and refilling with fresh mortar.

**Post Foundation:** A system of posts (most commonly concrete or wood) set into the ground at regular intervals to support the frame of a home above it.

**Pressure-Treated:** Wood timbers treated with chemical preservatives under enough pressure to force the treatment deeply into the wood. The purpose is to prevent deterioration.

**Rafters:** Sloping timbers extending from the eaves to the roof ridge.

**Recovery Rate:** The rate at which a water heater will recover from the use of hot water by producing more.

**R- Factor:** Measurement of a material's resistance to heat transmission, displayed on insulation, higher numbers give more insulating protection.

**Ridge:** The horizontal line along the highest part of the roof.

**Rip Edge:** Lengths of L-shaped metal flashing placed along the edges of a roof to seal the space between the shingles and the roof deck from the weather.

**Riser:** Vertical board set between stair treads.

**Roll Roofing:** Continuous strips of asphalt roofing applied with an overlap along the horizontal seam, particularly on low roofs.

**Romex:** Plastic-sheathed, flexible wire cable.

**Sash:** Framework that supports glass in a window.

**Septic Tank:** A subsurface tank (most commonly of concrete) which allows solids to settle out of waste water before the water flows to a drainage bed or leaching field.

**Service Entrance:** The point where the utility company's line enters the main electrical fuse or breaker box.

**Sheathing:** Primary covering over framing.

**Shim:** Small piece of material used to support adjustments in materials to achieve level or plumb surfaces.

**Slab-On-Grade:** A concrete floor slab placed directly on the ground.

**Sleepers:** Timbers usually laid flat, resting on the ground or concrete slab to support flooring.

**Slope:** A steep or gradual change (up or down) in the ground level.

**Soffit:** Surface under roof eaves overhanging an exterior wall.

**Stud:** Vertical, structural timber used to frame a wall.

**Subfloor:** Structural flooring laid directly over the floor joists; covered by finished flooring or underlayment.

**Sump:** A chamber (most typically a hole in the basement floor) into which water (from perimeter drain, etc.) can flow from which it is discharged either by a sump pump or a gravity drain.

**Swale:** Shallow depression to collect and transfer water. A type of surface drainage.

**Taping:** Process of applying joint compound, perforated tape and successive coats of joint compound to conceal the seams between gypsum wallboard panels.

**Termite Shield:** Metal strip fastened over the top of the foundation and angled a short distance down each side or a barrier to separate masonry and wood components of the structure.

**Toenailing:** Practice of driving nails at an angle through the sides of a stud or other timber near the end where it butts another timber.

**To The Weather:** Describes the portion of a material, usually siding, exposed to the elements.

**Trap:** U- or S-shaped pipe fitted beneath fixtures so that a water seal prevents septic odor from entering the house.

**Tread:** Flat, horizontal stair step.

**Truss:** Triangular, reinforced rafter.

**Underlayment:** Thin, smooth plywood or particle board applied over a rough subfloor; covered with carpeting, vinyl tile or other material requiring a smooth base.

**Valley:** Intersection created by two sloping roofs, generally meeting at right angles.

**Vapor Barrier:** Thin sheathing to prevent the transmission of moisture through a wall, typically overlapped sheets of polyethylene film.

**Ventilation:** Air flow through basements, wall cavities, attics, etc. to prevent accumulation of moisture.

**Vents:** The openings (typically louvered or weatherproof) to allow ventilation.

**Voltage:** (official) One volt is the voltage between two points of a conducting wire carrying a constant current of 1 ampere, when the power dissipated between these two points is 1 watt. (unofficial) A volt is a measure of the “pressure” of an electrical service.

**Wallboard:** Commonly, paper-covered gypsum panels.

**Warp:** Bending along the flat, wide surface of a board or door.

**Weep Holes:** Small holes drilled in sills or window frames through which condensation escapes; also short sections of pipe placed at the base of retaining walls to release hydrostatic pressure and groundwater.

**Zone:** Independently controlled section of a heating system (typically hot water).

This glossary of common building terminology is provided as a service of  
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in building inspections. Criterium Engineers® is headquartered at 22 Monument Sq. Suite 600, Portland, ME 04101 (800) 242-1969

## Appendix O: Glossary

The following is a series of key words and their definitions used in the development of Long Range Management Plans for Vermont Agency of Natural Resource lands.

***Acceptable management practices (AMPs).*** In this plan, a series of erosion control measures for timber harvesting operations, as identified in state statutes. The AMPs are the proper method for the control and dispersal of water collecting on logging roads, skid trails, and log landings to minimize erosion and reduce sediment and temperature changes in streams.

***All-aged (Uneven-aged) system.*** Timber management which produces a stand or forest composed of a variety of ages and sizes. Regeneration cutting methods in this system include single tree selection and group selection.

***Basal area.*** A measure of the density of trees on an area. It is determined by estimating the total cross-sectional area of all trees measured at breast height (4.5 feet) expressed in square feet per acre.

***Best management practices.*** A practice or combination of practices determined to be the most effective and practicable means of preventing negative impacts of silvicultural activities.

***Biodiversity.*** The variety of plants and animals, their genetic variability, their interrelationships, and the biological and physical systems, communities, and landscapes in which they exist.

***Biophysical region.*** A region with shared characteristics of climate, geology, soils, and natural vegetation. There are currently eight biophysical regions recognized in Vermont.

***Block.*** A land management planning unit.

***Browse.*** The part of leaf and twig growth of shrubs, vines, and trees available for animal consumption.

***Buffer (Riparian Buffer Zone).*** The width of land adjacent to streams or lakes between the top of the bank or top of slope or mean water level and the edge of other land uses. Riparian buffer zones are typically undisturbed areas, consisting of trees, shrubs, groundcover plants, duff layer, and a naturally vegetated uneven ground surface, that protect the water body and the adjacent riparian corridor ecosystem from the impact of these land uses.

***Canopy.*** The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

***Capability.*** The potential of an area to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current conditions and site conditions such as climate, slope, landform, soils, and geology as well as the application of management practices such as silvicultural protection from fire, insects, and disease.

***Cleaning (Weeding).*** Regulating the composition of a young stand by eliminating some trees and encouraging others, and also freeing seedlings or saplings from competition with ground vegetation, vines, and shrubs.

***Clearcutting.*** A cut which removes all trees from a designated area at one time, for the purpose of creating a new, even-aged stand.

***Commercial forest land.*** Land declared suitable for producing timber crops and not withdrawn from timber production by statute or administrative regulation.

***Conservation.*** The careful protection, planned management, and use of natural resources to prevent their depletion, destruction, or waste.

***Conservation easement.*** Acquisition of some rights on a parcel of land designed to keep the property undeveloped in perpetuity.

***Cover.*** Vegetation which provides concealment and protection to wild animals.

***Cultural operation.*** The manipulation of vegetation to control stand composition or structure, such as site improvement, forest tree improvement, increased regeneration, increased growth, or measures to control insects or disease. Examples of methods used are timber stand improvement, cleaning or weeding, release, and site preparation.

***DBH (diameter at breast height).*** The diameter of the stem of the tree measured at breast height (4.5 feet or 1.37 meters) from the ground.

***Deer wintering area.*** Forest area with at least 70 percent conifer that provides suitable, stable habitat to meet deer needs during the winter.

***Den tree.*** A live tree at least 15 inches DBH (diameter at breast height) containing a natural cavity used by wildlife for nesting, brood rearing, hibernating, daily or seasonal shelter, and escape from predators.

***Developed (or intensive) recreation.*** Activities associated with man-made structures and facilities that result in concentrated use of an area. Examples are campgrounds and ski areas.

***Diameter at breast height (DBH).*** The diameter of the stem of the tree measured at breast height (4.5 feet or 1.37 meters) from the ground.

***Dispersed recreation.*** Outdoor recreation activities requiring few, if any, support facilities.

***Ecological processes.*** The relationships between living organisms and their environment. Among these processes are natural disturbances such as periodic fire, flooding, or beaver activity; natural stresses such as disease or insects; catastrophic weather-related events such as severe storms or lightning strikes; or more subtle ongoing processes such as succession, hydrology, and nutrient cycling.



**Ecological reserve.** An area of land managed primarily for long-term conservation of biodiversity.

**Ecosystem.** A complex array of organisms, their natural environment, the interactions between them, the home of all living things, including humans, and the ecological processes that sustain the system.

**Ecosystem management.** The careful and skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity, uses, products, and services over the long-term.

**Endangered species.** A species listed on the current state or Federal endangered species list (VSA Title 10, chapter 123). Endangered species are those which are in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range.

**Even-aged system.** Timber management that produces a forest or stand composed of trees having relatively small differences in age. Regeneration cutting methods in this system include clearcutting, seed tree (seed cut) method, and shelterwood method.

**Forest health.** Condition in which forest ecosystems sustain their complexity, diversity, resiliency, and productivity.

**Forest type.** A natural group or association of different species of trees which commonly occur together over a large area. Forest types are defined and named after the one or more dominant species of trees, such as the spruce-fir and the birch-beech-maple types.

**Forestry.** The art and science of growing and managing forests and forest lands for the continuing use of their resources.

**Fragmentation.** Division of a large forested area into smaller patches separated by areas converted to a different land use.

**Game species.** Animals habitually hunted for food, particular products, sport, or trophies.

**Geographic Information Systems.** A computer-based means of mapping lands and resources and communicating values associated with them (GIS).

**Green certification.** A process, sponsored by several international organizations, that promotes sustainable forest management practices, providing a marketplace identify for forest products certified to have been grown and manufactured in a sustainable manner.

**Group Selection.** The removal of small groups of trees to meet a predetermined goal of size, distribution, and species.

**Habitat.** A place that provides seasonal or year round food, water, shelter, or other environmental conditions for an organism, community, or population of plants or animals.



**Hardwood.** A broad leaved, flowering tree, as distinguished from a conifer. Trees belonging to the botanical group of angiospermae.

**Healthy ecosystem.** An ecosystem in which structure and functions allow the maintenance of the desired conditions of biological diversity, biotic integrity, and ecological processes over time.

**Heritage Sites.** Sites identified by the Vermont Nongame and Natural Heritage Program of the Department of Fish and Wildlife, which have rare, threatened, or endangered species of plants or animals. Heritage sites are identified using a common standards-based methodology, which provides a scientific and universally applicable set of procedures for identifying, inventorying, and mapping these species.

**Intensive (or developed) recreation.** Outdoor recreation activities requiring major structures and facilities.

**Interior dependent species.** Those wildlife species that depend on large unbroken tracts of forest land for breeding and long term survival. The term is also often used in conjunction with neotropical migratory bird species requiring large patches of fairly homogeneous habitat for population viability.

**Intermediate treatment.** Any treatment or tending designed to enhance growth, quality vigor, and composition of the stand after its establishment or regeneration and prior to the final harvest.

**Land conservation.** The acquisition or protection through easements of land for wildlife habitat, developed state parks, and working forests.

**Landscape.** A heterogeneous area of land containing groups of natural communities and clusters of interacting ecosystems. These can be of widely varying scales but normally include a range of elevations, bedrock, and soils.

**Mast.** The fruit (including nuts) of such plants as oaks, beech, hickories, dogwood, blueberry, and grape, used for food by certain wildlife species.

**Motorized use.** Land uses requiring or largely dependent on motor vehicles and roads.

**Multiple-use forestry.** Any practice of forestry fulfilling two or more objectives of management, more particularly in forest utilization (e.g. production of both wood products and deer browse).

**Multiple-use management.** An onsite management strategy that encourages a complementary mix of several uses on a parcel of land or water within a larger geographic area.

**Native (species).** A plant or animal indigenous to a particular locality.

**Natural Area.** Limited areas of land, designated by Vermont statute, which have retained their wilderness character, although not necessarily completely natural and undisturbed, or have rare or vanishing species of plant or animal life or similar features of interest which are worthy of preservation for the use of present and future residents of the state. They may include unique ecological, geological, scenic, and contemplative recreational areas on state lands.

**Natural community.** An assemblage of plants and animals that is found recurring across the landscape under similar environmental conditions, where natural processes, rather than human disturbances, prevail.

**Nongame species.** Animal species that are not hunted, fished, or trapped in this state. This classification is determined by the state legislature.

**Northern hardwood.** Primarily sugar maple, yellow birch, and beech. May include red maple, white ash, white birch, black cherry, red spruce, and hemlock.

**Old growth forest.** A forest stand in which natural processes and succession have occurred over a long period of time relatively undisturbed by human intervention.

**Outdoor recreation.** Leisure time activities that occur outdoors or utilize an outdoor area or facility.

**Overstory.** That portion of the trees, in a forest of more than one story, forming the upper or upper-most canopy layer.

**Pole.** A tree of a size between a sapling and a mature tree.

**Pole timber.** As used in timber survey, a size class definition; trees 5.0 to 8.9 inches (varies by species) at DBH. As used in logging operations, trees from which pole products are produced, such as telephone poles, pilings, etc.

**Regeneration treatment (harvest cut).** Trees are removed from the stand to create conditions that will allow the forest to renew or reproduce itself. This is accomplished under either an even-aged management system or an uneven-aged management system.

The four basic methods used to regenerate a forest are clearcutting, seed-tree, shelterwood, and selection (group selection or single tree selection).

**Regeneration methods.** Timber management practices employed to either regenerate a new stand (regeneration cutting) or to improve the composition and increase the growth of the existing forest (intermediate treatment).

**Regulated Hunting/Fishing/Trapping.** The harvest of wildlife under regulations stipulating setting of seasons, time frame of lawful harvest, open and closed zones, methods of take, bag limits, possession limits, and reporting or tagging of species.

**Release (release operation).** The freeing of well-established cover trees, usually large seedlings or saplings, from closely surrounding growth.

**Removal cut.** The final cut of the shelterwood system that removes the remaining mature trees, completely releasing the young stand. An even-aged stand results.

**Salvage Cutting.** The removal of dead, dying, and damaged trees after a natural disaster such as fire, insect or disease attack, or wind or ice storm to utilize the wood before it rots.

**Sanitation cutting.** The removal of dead, damaged, or susceptible trees to improve stand health by stopping or reducing the spread of insects or disease.

**Sapling.** As used in timber surveys, a size class definition. A usually young tree larger than seedling but smaller than pole, often 1.0 to 4.9 inches at DBH.

**Seedling.** A very young plant that grew from a seed.

**Seed-Tree (Seed Cut) method.** The removal of most of the trees in one cut, leaving a few scattered trees of desired species to serve as a seed source to reforest the area.

**Shelterwood method.** A series of two or three cuttings which open the stand and stimulate natural reproduction. A two cutting series has a seed cut and a removal cut, while a three cutting series has a preparatory cut, a seed cut, and a removal cut.

**Silvicultural systems.** A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of forest thereby produced.

**Single tree selection method.** Individual trees of all size classes are removed more or less uniformly throughout the stand to promote growth of remaining trees and to provide space for regeneration.

**Site Preparation.** Hand or mechanical manipulation of a site, designed to enhance the success of regeneration.

**Snag.** Includes standing dead or partially dead trees that are at least 6 inches in diameter at breast height (DBH) and 20 feet tall.

**Softwood.** A coniferous tree. Softwood trees belong to the botanical group gymnospermae, including balsam fir, red spruce, and hemlock.

**Stand improvement.** An intermediate treatment made to improve the composition, structure, condition, health, and growth of even or uneven-aged stands.

**Stewardship.** Caring for land and associated resources with consideration to future generations.

**Sustainability.** The production and use of resources to meet the needs of present generations without compromising the ability of future generations to meet their needs.

**Sustained yield.** The yield that a forest can produce continuously at a given intensity of management.

**Thinning.** Removing some of the trees in a dense immature stand primarily to improve the growth rate and form of the remaining trees and enhance forest health.

**Threatened species.** A species listed on the state or Federal threatened species list. Threatened species are those likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

**Timber lands.** Properties that are managed primarily for the maximum production of forest products.

**Timber Stand Improvement.** Activities conducted in young stands of timber to improve growth rate and form of the remaining trees.

**Traditional uses.** Those uses of the forest that have characterized the general area in the recent past and present, including an integrated mix of timber and forest products harvesting, outdoor recreation, and recreation camps or residences.

**Uneven-aged (All-aged) system.** Timber management which produces a stand or forest composed of a variety of ages and sizes. Regeneration cutting methods in this system include single tree selection and group selection.

**Watershed.** The geographic area within which water drains into a particular river, stream, or body of water. A watershed includes both the land and the body of water into which the land drains.

**Weeding (cleaning).** Regulating the composition of a young stand by eliminating some trees and encouraging others, and also freeing seedlings or saplings from competition with ground vegetation, vines, and shrubs.

**Wilderness.** Areas having pristine and natural characteristics, typically roadless and often with some limits on uses. (This is not the federal definition of wilderness.)

**Wildlife habitat.** Lands supplying a critical habitat need for any species of wildlife, especially that which requires specific treatment and is of limited acreage.

**Working forest.** Land primarily used for forestry purposes but also available for recreation, usually where both managed land and land not presently being managed is present.

**Working landscape.** A landscape dominated by land used for agricultural and/or forestry purposes.

## **Appendix P: Town of Dummerston Letter Regarding Dutton Pines State Park**

Comments on the Brattleboro Management Unit  
Proposed Long Range Management Plan  
for Dutton Pines State Park

APR 25 2011

Ed Anthes  
1556 East West Road  
Dummerston, Vermont 05301

April 22, 2011

On behalf of the Dummerston Conservation Commission:

The importance of the Dutton Pines site to Dummerston is stated clearly in the Dummerston Town Plan, adopted in 2010.

### ***Recreation, Scenic, Historic, and Cultural Resources Goals, Policies, and Action Steps***

**Goal 1:** To be stewards for recreational and scenic resources essential to the Dummerston community's character.

**Policy 1.1:**     **Maintain and enhance access to public lands.**

*Action Steps:*

a.   Work with appropriate local officials and groups to:

Identify public recreational areas and recommend actions for improvements;  
Explore more extensive use of Dutton Pines State Park;  
Design a display area(s) for Town and regional recreational events;  
Identify any new recreation areas that could be purchased by the Town  
or acquired by gift. (Conservation Commission)

As indicated in the Town Plan, the people of Dummerston have a strong interest in reinvigorating Dutton Pines. While Dummerston has several natural areas available for public recreation, including the West River, Black Mountain, and Prospect Hill, there is a lack of available facilities for people with limited mobility. The existing road at Dutton Pines, formerly the old North-South road, could provide an outdoor walking route for people who use walkers or wheelchairs. This road should not be graveled, contrary to the plan's recommendation, because that would make use of walkers and wheelchairs extremely difficult. Development of more trails in the lower section of the site should be investigated.

The historic significance of Dutton Pines State Park is well described in the BMU Long Range Management Plan narrative.



This parcel was part of the Dutton Farm in the late 1800s. It was a site of tree planting by the family and was maintained by the Duttons for public use before state ownership. A day use picnic area was built by the CCC and a few structures still exist.

The Management Plan also states:

**Legal Constraints:** Agency lands are managed in accordance with the purposes for which they were acquired.

**Acquisition History:** Purchased 1937 from Edith Dutton to be developed as a park in memory of her father, Myron Dutton.

The Agency has an obligation to endeavor to maintain Dutton Pines as a public use park. The best way to do this may be to turn the property over to the Town of Dummerston.

Continued use as a park will help ensure that the watershed easement and restrictions granted to the Housing Foundation are protected.

Any Long Range Plan for Dutton Pines must reflect the nature of the site as a largely intact historic district dating from the late Depression Era. Dutton Pines is an example of Civilian Conservation Corps mid-20<sup>th</sup> Century state campground design and construction. The site should be nominated for inclusion in the National Register of Historic Places. Dutton Pines is notable both for its historically significant, intact Civilian Conservation Corps structures, and the integrity of the site, which has been maintained as a recreation area for even longer than the seventy-four years it has been a state park.

The picnic pavilion, with massive beams, open interior roof support structure, massive stone hearth, and the stone chimney, are classic examples of the architectural style used by the Civilian Conservation Corps in park construction.







The stone exterior chimney is also a prominent feature of the former caretaker's cottage.



The recommendation in the proposed plan to dismantle these historic structures and to remove the wooden elements, leaving the stone chimneys behind, abandoned, is unacceptable. As stated in the plan, “CCC-era buildings and infrastructure [are] in reasonably good condition.” And, elsewhere, “Due to the dry nature of the ground here, they are in surprisingly good shape.”

These historic buildings must be preserved in place. To remove these critical elements would destroy the historic significance and integrity of the Dutton Pines site. It is not feasible to remove and reconstruct the massive masonry hearths and chimneys, which are primary characteristics of two of the historic structures built here by the CCC.

As indicated by its name, the Dutton Pines site is an example of an area under continuous forest management since the original pine plantation was developed by the Dutton Family beginning in 1887. While many of the trees in the upper areas are mature, extreme care should be taken in any management activities, like the thinning recommended in the plan. Management of the forest must ensure that harmful side effects, such as blowdown, overbrowsing by deer, and invasive exotic

vegetation, will be minimized. Any cutting must take into account that invasive shrubs and tree seedlings are already present, and the potential damage threatened by invasive insects (HWA, ALB, EAB) in the near term.

I agree with the Plan that Dutton Pines is a "Perfect site for management demonstration area."

...the parcel's historical significance, visual appeal, and location provide an opportunity to demonstrate high quality stewardship in a highly visible setting.

Further work needs to be done to inventory the site and evaluate its status as a rare natural community: White Pine-Red Oak-Black Oak Forest.

A gate is proposed in the Management Plan. The design of this gate should be in keeping with the historic status of the park. Designs contemporaneous with the time period should be preferred.

The people of the Town of Dummerston want to preserve Dutton Pines and will work with the State of Vermont to ensure a second century of use as a demonstration forest and public recreation area.



# **Appendix Q:** **Trail Connectivity Map Between Wilmington Town Trails, Molly Stark State Park, and Hogback Mountain Conservation Area**

